

# MOTOR AGE

Vol. LI  
Number 18

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Thirty-five Cents a Copy  
Three Dollars a Year

## Riding is like *flying*

You can never forget this thrilling difference from all other transportation!

Smooth indifference to road conditions . . .  
Silky smoothness in all performance . . .  
Riding in the Essex Super-Six is actually like flying.

The dramatic appeal of a single ride is the basis of the greatest sales in our history.

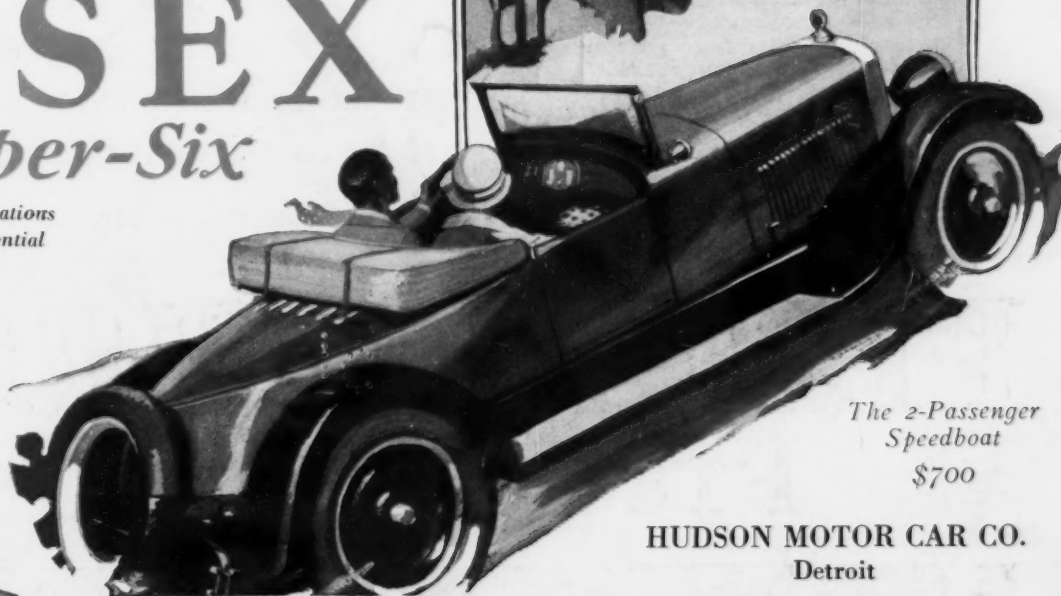
This amazing Super-Six performance and quality is economical to buy and own. It is the outstanding triumph of engineering—for long wear, accessibility and lowest operation and maintenance costs.

## ESSEX *Super-Six*

Dealer Applications  
Held Confidential

4-pass. Speedster . \$785  
Coupe . . . . . 735  
Coach . . . . . 735  
Sedan . . . . . 795  
De Luxe Sedan . 895

f. o. b. Detroit, plus  
war excise tax



The 2-Passenger  
Speedboat  
\$700

HUDSON MOTOR CAR CO.  
Detroit



STANDARD EQUIPMENT IN AMERICA'S FINEST CARS -- WINNER IN EVERY MAJOR RACE FOR FIVE YEARS



The PERFECT CIRCLE combination of one *Oil-Regulating* and two *Compression* rings for each cylinder constitutes the finest in piston ring equipment; stops oil-pumping and blow-by, gives increased oil-mileage, thorough lubrication and maximum compression.

*Oil-Regulating Type, 60c and up*  
*Compression Type, 30c and up*

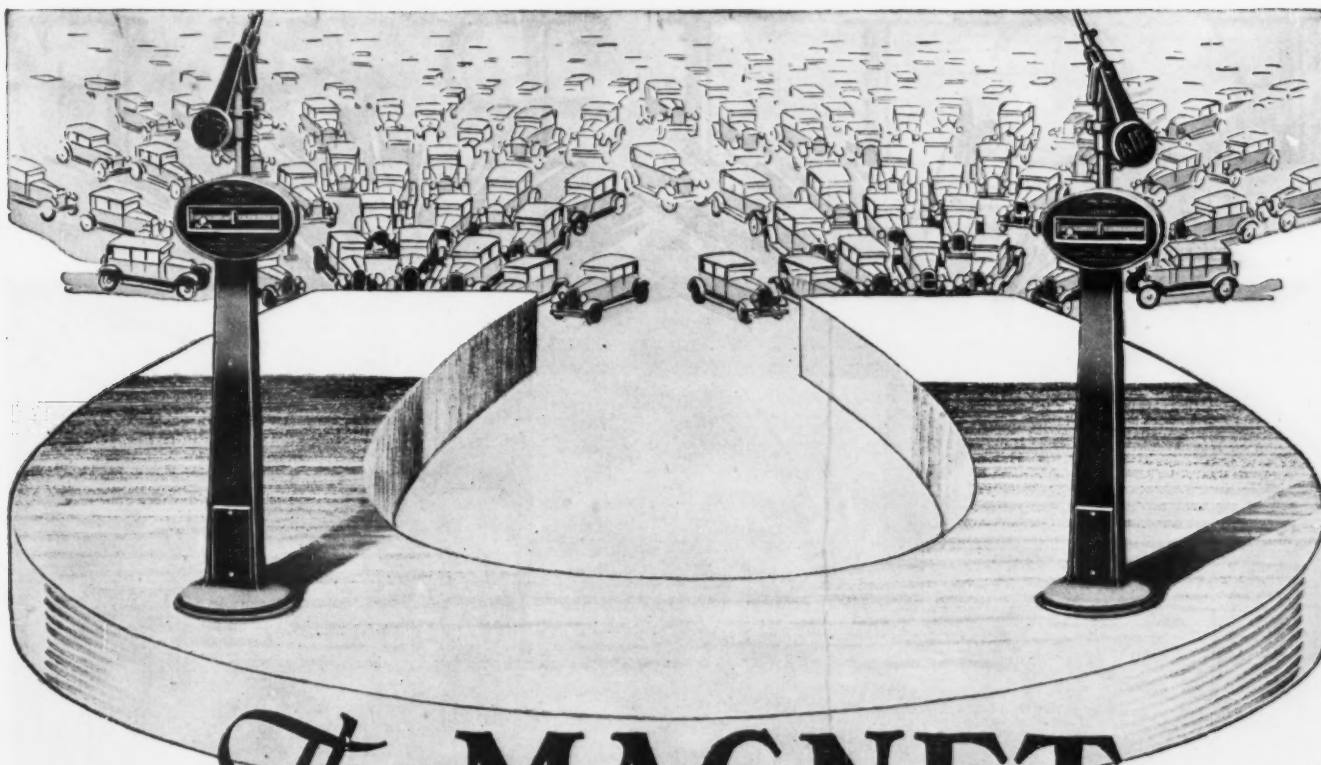
For immediate service from your jobber, specify only S. A. E. standard oversizes: .005, .010, .015, .020, .030, .040 and .050.

IN three representative states, an investigation shows that PERFECT CIRCLE *Oil-Regulating* rings are asked for by car owners *ten times* as often as any other ring sold through jobbing channels. PERFECT CIRCLE *Compression* rings also lead in owner-preference. It *pays* to sell what people want.

THE PERFECT CIRCLE COMPANY, HAGERSTOWN, INDIANA

# PERFECT CIRCLE PISTON RINGS

BETTER MADE FOR BETTER PERFORMANCE



# *The* **MAGNET** *that Attracts Business!*

**T**HE New Improved Air-Scales are without question the greatest business magnet for garages, service stations and auto salesrooms on the market.

Motorists go out of their way to stop for air and patronize places that have these machines. Finished in royal blue Duco lacquer with bright orange lettering, Air-Scales attract instant attention.

A single turn of the convenient knob

and they are ready to fill tires to the correct pressure with clean filtered air. Illuminated at night.

For permanent, profitable business equip now with Air-Scales. Easy to install and fully guaranteed.

Endorsed and sold by leading jobbers everywhere—ask your jobber or write us direct.

*The Air-Scale Company*

812 Broadway, TOLEDO, OHIO

1780 Broadway  
NEW YORK, N. Y.

534 Allen Bldg.  
DALLAS, TEX.

667 Folsom St.  
SAN FRANCISCO, CAL.



S.M. 2-11/28



# ECLIPSE

## BENDIX DRIVE



## A MODERATE INVESTMENT —Brings New Profits



### Service Station Stock No. 2.

With a total of eighteen complete drives and 267 parts, including springs, sleeves, driving heads, bolts, screws, washers, etc. Service Station Stock No. 2, pictured above, enables the servicing of more than 85% of the passenger cars in operation today. Service Station Stock No. 1 is not as comprehensive, but enables the servicing of 75% of the of the passenger cars. Fill out and mail coupon below for complete information.

Eclipse Machine Company  
Elmira, New York.  
Department 7.

We are interested in the new Eclipse Bendix Service Station Stocks. Please send complete information, and names of nearest jobbers to

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_

ANY garage can now maintain, with a moderate investment, prompt and dependable service on the Eclipse Bendix Drive for the great majority of cars. The new Eclipse Bendix Service Station Stocks—carefully chosen assortments of *genuine* parts—make this possible. They will increase your volume and profits on Eclipse Bendix service.

Quick turnover is assured, as the selection of the parts included in these stocks is based on our records of the actual demand for each part. Practically every part can be used in servicing several makes of cars.

And you have the added satisfaction of knowing that every part is a *genuine* part—made of the best quality material, on the same machines, and by the same skilled workmen, as the Eclipse Bendix Drive for standard equipment. Ask your jobber about the new Service Station Stocks.

**ECLIPSE MACHINE COMPANY**  
**ELMIRA, NEW YORK**

Eclipse Machine Co., Hoboken, N. J. • Eclipse Machine Co., Ltd., Walkerville, Ont.

# MOTOR AGE

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NO. 18

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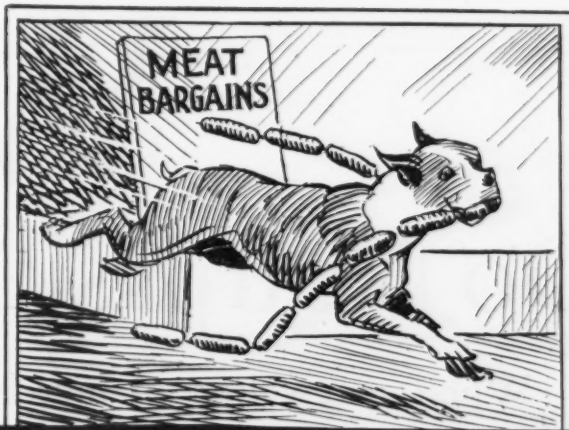
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## Can't get 'em back!

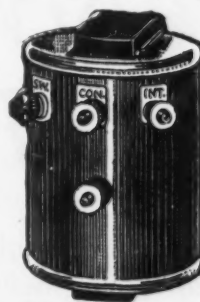
That's one good thing about Primax transformers. Once sold, **they stay sold**. Customers won't let them get back. That's how good they are. They'll outlive any car you name.

Primax is sold on an **unconditional** guarantee. That guarantee is registered! Records show that 42% of Primax sales replace coils working as well as ever—but not quite as well as they should. That's something for you to think about.

Primax fits all cars, too; a universal unit. Advertised, trade marked, a standardized product, known from coast to coast. Easy to sell. Easy to install; takes but a few minutes.

That's the kind of a product to get behind and push, for your own sake—and that of your customers.

**THORDARSON ELECTRIC MANUFACTURING CO.**  
*Transformer specialists since 1895*  
**WORLD'S OLDEST AND LARGEST EXCLUSIVE TRANSFORMER MAKERS**  
 Chicago, U.S.A.



**THORDARSON**  
**PRIMAX**  
**IGNITION**

## MAIL THIS COUPON NOW!

THORDARSON ELECTRIC MFG. CO.  
 500 W. Huron St., Chicago, Ill.

Send complete sales information and net trade prices on Primax Ignition Transformers.

Name.....

Address.....

(3831)



# What Do You Ask the Salesman?

When a new line of merchandise is brought to your attention, several major points at once come to your mind:

*Has the product merit?*

*Is it adaptable to my trade?*

*Will it be profitable for me to handle?*

*Is it a volume line?*



## *Will Satisfy You on Every One of These Points*

Their merits have been proven under test by competent automotive engineers, and by actual service on hundreds of thousands of automobiles.

They are especially adapted to the activities of jobbers and dealers handling ignition parts.

The profit margin is good.

It is a volume line, because it can be used on every spark plug. Every car a prospect.

Full details of the Lepel Operating Plan will be sent at your request—write or wire today. Address Dept. M.A.-5.

LEPEL IGNITION CORPORATION  
117 WEST 63rd STREET ~ NEW YORK CITY

\$945  
to  
\$2495

WITHIN the bracket of these figures is motordom's widest and most highly profitable market. They include neither cheap nor silk hat classification in motor cars, but the broad, steady demand that has made the industry second in importance only to steel itself.

Studebaker dealers offer cars from \$945 to \$2495—every one a “six”—every one quality built—every one a supreme value, measured by the yardstick of quality and dollar-for-dollar worth.

The Erskine Six, Motordom's Little Aristocrat opens this great line of quality cars with a coupe model at \$945. Studebaker's President, limousine model, at \$2495 is at the top—more automobile for the money than has ever been offered before either at home or abroad.

For information regarding the Studebaker franchise in your territory, wire or write—Dept. 51, The Studebaker Corporation of America, South Bend, Indiana.

STUDEBAKER

*( This is a Studebaker Year )*



# Another—

## Great Nash Sales Advantage



A cheerful willingness to answer your hand on the wheel is one of the very first things you notice, when you drive a Nash.

In many ways, Nash has provided for the ease and comfort of the arms that steer the car. In getting into or out of a tight place at the curb you will particularly notice the slight effort needed.

When you turn a corner, you'll welcome the shorter wind-up of the steering wheel.

In an emergency, this short turn of the wheel means quick responsiveness—and an accident averted. Nash steer-

ing is easier—faster—less tiring on the arms and wrists—and infinitely safer in dense traffic.

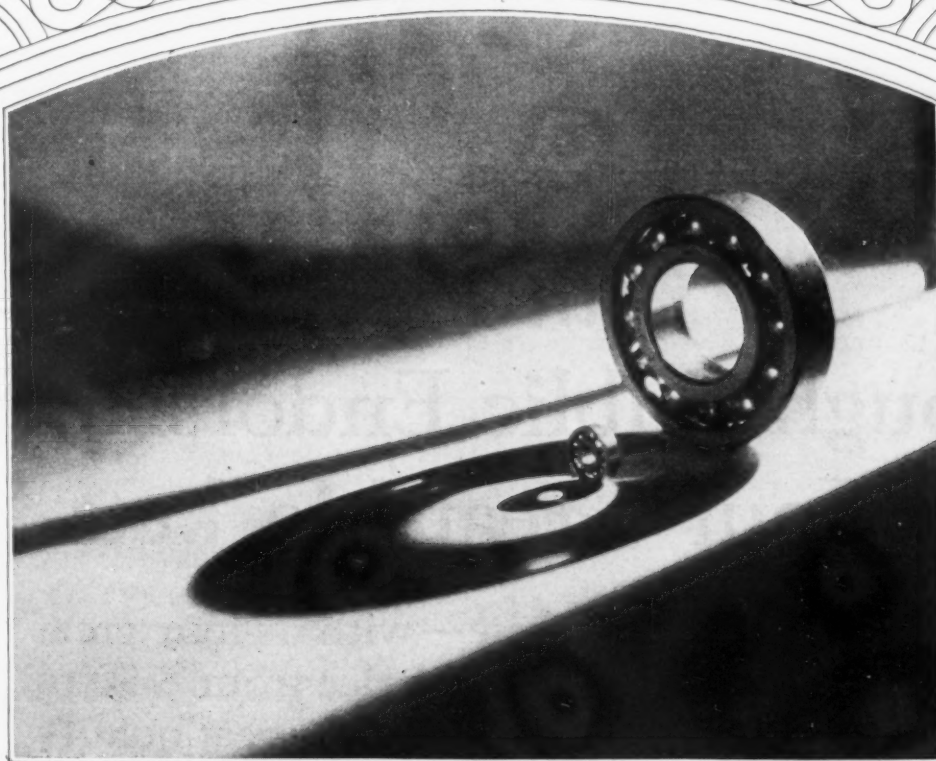
Nothing has been spared to build a more delightful car to drive. The steering mechanism is, beyond question, the most expensive type built today for cars in the Nash price field.

Like the steering, every detail in the car reflects the Nash determination to lead the world in motor car value.

Another instance of the outstanding excellence in Nash design is the 7-bearing motor—without a doubt the smoothest type in all the world.

# NASH

*Leads the World in Motor Car Value*



**T**HE chances are 48 to 1 that New Departures are in your car. Learn where they are located and use them as examples of carefree dependability in your sales talk.

The buyer will be interested to know that New Departures never wear appreciably—never need adjustment—and, barring accident, that he will never have to replace one as long as he drives his car.

The car owner need never give them a thought. All the care they need, they will receive with the routine pressure-gun lubrication.

Because of the use of New Departures, the parts they support have a longer life—by rigid and permanent location of shaft and gears.

THE NEW DEPARTURE MANUFACTURING COMPANY

Detroit

Bristol, Connecticut

Chicago

**New Departure**  
*Quality*  
**Ball Bearings**

641





## *4th Place* Through Public Endorsement in Four Great Markets

A Chrysler franchise—with its four great lines of cars ranging in price from \$750 to \$3995 and covering the four great quality car markets—has never been as great a dealer asset as at this moment.

Dealer sales records everywhere show conclusively that where others have declined Chrysler has gained; and where others have gained, Chrysler has gained still more—now being fourth in the industry in dollar volume of sales.

No better evidence than this can be given of the public endorsement of the outstanding value built into each car under the Chrysler plan of Standardized Quality—a public preference which means greater volume and greater profit.

# CHRYSLER

MAY -6 '27

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Volume LI

## MOTOR AGE

Number 18



C H I C A G O , M A Y 5 , 1 9 2 7

## DOLLARS Per DEALER

Volume of Retail Automotive Sales by Years—1927 Estimated

1920	1921	1922	1923	1924	1925	1926	1927
\$4,960,044,000	\$3,824,600,000	\$4,942,125,000	\$5,576,900,000	\$5,889,000,000	\$6,935,000,000	\$7,520,000,000	\$8,025,000,000

**I**N this diagram we have the story of the progress of the automotive industry in the last six years and its probable progress in 1927. We see that the industry has grown from a retail sales volume of \$4,960,044,000 in 1920 to \$7,520,000,000 in 1926 and probably \$8,025,000,000 in 1927. This represents sales of new cars and trucks, accessories, parts, supplies and fuel and lubricants. The business has almost doubled in volume in seven years.

Number of Dealers Engaged in Retail Automotive Business

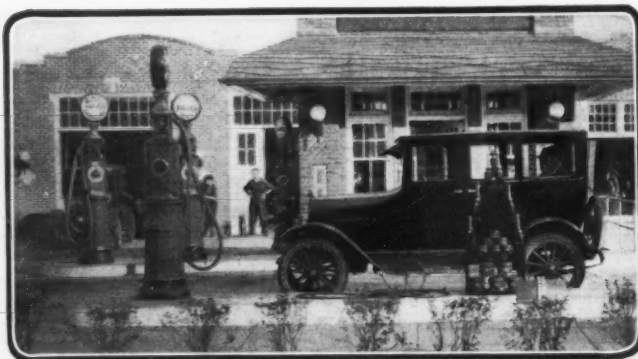
1920	1921	1922	1923	1924	1925	1926	1927
63,323	66,116	78,793	83,052	90,190	95,711	97,177	104,201

**H**ERE we have a graphic portrayal of the growth of the retail automotive trade in number of units. If while the industry has had its great growth in sales volume the number of dealers had stood still it would have meant more business per dealer. This automatically would have made it possible for dealers to make more money. But in the realm of economics things do not work that way and we see more and more dealers attracted to the business as it develops to greater proportions.

Dollars per Dealer—If All Shared Alike in the Total



**I**F the total retail automotive business had been divided equally among the recognized retail dealers the share of each would have been as shown in this diagram. We know, of course, that it was not divided equally and that some got much more than others. The value of this chart is to show that the natural increase in volume of business does not of itself increase volume to any dealer. As the business grows there are more dealers to share it, and the dealer who expects to increase his sales and his profits must make himself a better dealer—a better merchandiser—than his fellows.



# Sources

*This Business of More Than Eight Billion  
Which Intelligent Dealers May*

## Special Services Give Added Profits

**A** GREAT source of profit not portrayed by the diagram on these pages is opened up in the special services for automobiles that have come into demand in the last few years. Among the most profitable of these services are washing and cleaning, refinishing, brake testing and adjusting, day storage or parking in large cities, and periodic inspections and adjustments.

The greater durability of lacquer finishes combined with the vogue for colors has encouraged owners to keep their cars looking well and modern equipment speeds the work.

By SAM SHELTON

**T**HE great reservoir of profit from which the automotive dealer may draw is the vast pool of dollars representing the market value of the motor vehicles, tires, accessories, parts, supplies and fuel and lubricants purchased and used by the people of the United States.

For 1927 this profit reservoir will measure approximately \$8,025,000, according to estimates made by the Commercial Survey department of the Chilton Class Journal Co. Carrying away profit from this great spring are more than 100,000 retail dealers, and the amount each will get depends upon his own energy, initiative, and business sense.

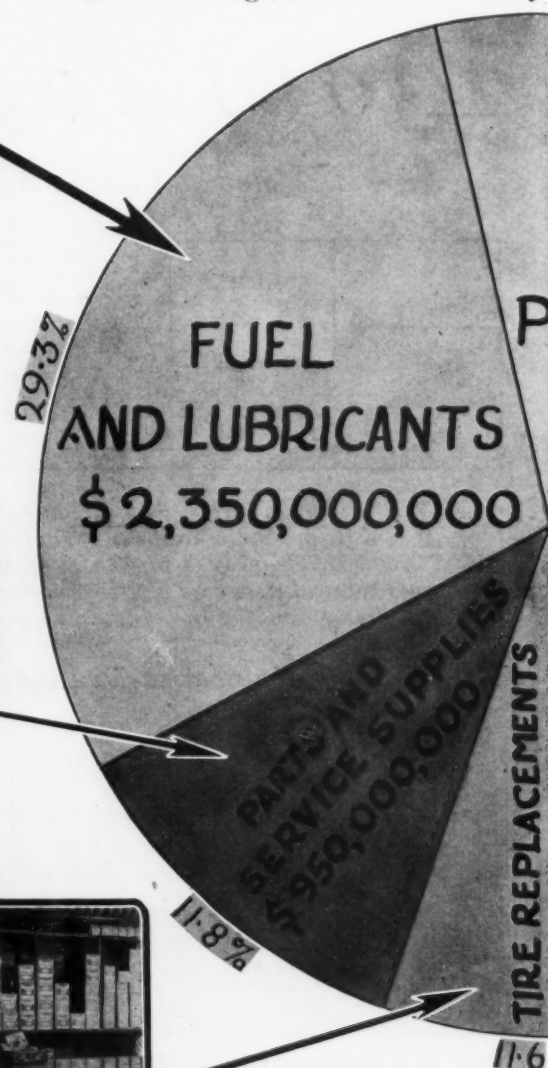
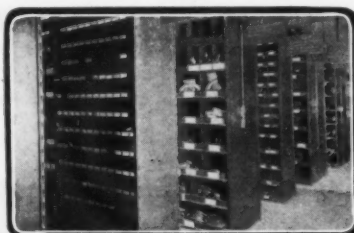
To a great extent this pool can be developed and increased. Individual dealers by timely suggestion and progressive methods can enlarge sales and add to the sum total of automotive business, but from past history we have seen that as volume increases the number of dealers grows and the profit per dealer if equally divided remains substantially the same.

### Merit Is the Measure of Success

It is imperative, therefore, that the dealer who wants to increase his profit, improve his business and establish a permanent and successful institution should rely upon his superiority as a merchandiser to bring him the added volume and profit that he needs. He cannot expect the natural growth of the industry to do it for him.

For the intelligent dealer with vision and ambition and the energy and force to proceed along sound business lines the automotive industry holds a happy future. A volume of business of startling magnitude, to supply the automotive transportation needs of the people, is assured. The dealers who serve best in bringing these transportation needs to the people who use them will be the ones to reap the rewards.

Contributing to the great profit reservoir are the



many branches of the industry, each a living spring of continuous business activity. Although still constituting the largest single source of profit, the new passenger car has long since ceased to be the majority factor in the total volume.

On the basis of estimated business for 1927 we find that although new passenger cars will constitute about 36 per cent of the retail volume, the Service of Supply, which includes providing merchandise for the maintenance and operation of vehicles, will amount to more than 57 per cent of the entire volume. The sale of the new vehicle is important, but the supplying of the after-market is a bigger job.

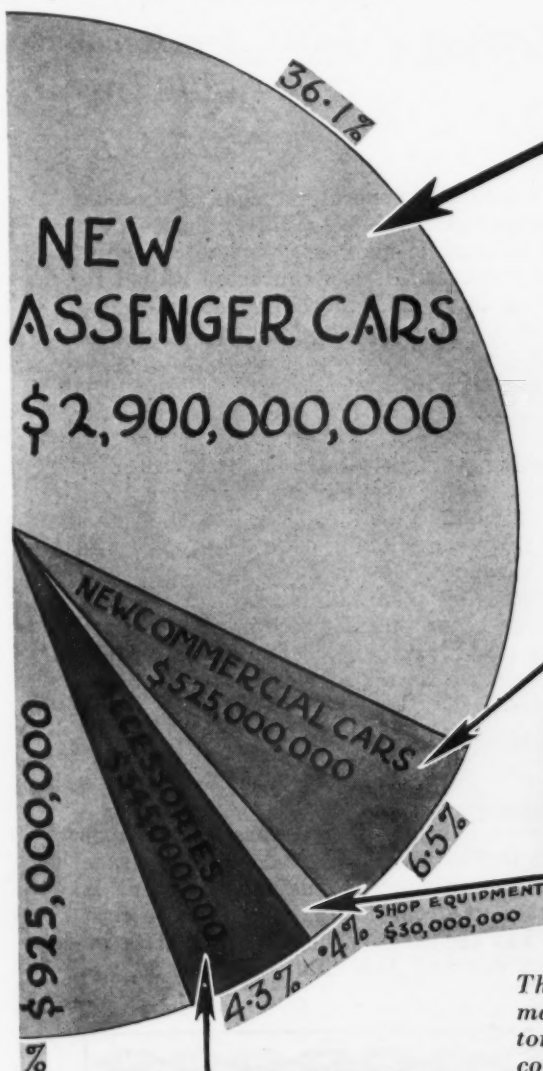
### The Bigger Market

Many dealers who formerly depended almost entirely upon the sale of new vehicles for their profit are now taking up the after-market. They are selling more and more accessories, tires and other supplies, and they are



# of Profit

*Dollars a Year Is a Vast Reservoir from Replenish Their Purses*



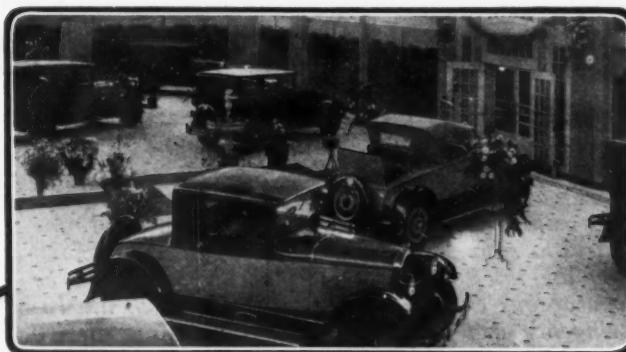
This chart shows the estimated volume of retail automotive sales for 1927 as compiled by the Commercial Survey Department of the Chilton Class Journal Co., publisher of MOTOR AGE, Automotive Industries, Automobile Trade Journal, Motor World Wholesale, and other automotive papers



developing their service departments on a profitable basis. They find that in providing an efficient and dependable maintenance service for car owners they automatically provide themselves with a most lucrative contact for the sale of all sorts of merchandise needed in the daily operation of the vehicle.

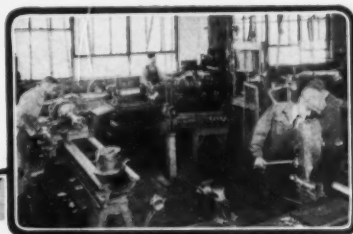
## Parking Business Grows

A large corporation operating day storage and parking garages in the shopping and office sections of large cities has found that by turning its attention to the sale of automotive merchandise and special services



it now obtains more than 50 per cent of its revenue from this source, greatly augmenting its profits.

Under flat rate service, labor is becoming, as it should be, a source of reasonable profit for the dealer and shop proprietor. On the other hand, it is practically impossible for the shop to make a profit on labor that is paid for by the hour even though such labor usually costs the customer more than under a flat rate plan. Labor that is purchased and sold by the hour is an uncertain quantity. One can never tell how much or how little one will get for a given amount. But when labor is purchased and sold by the job it can be definitely measured.



## A Billion Dollar Labor Bill

In the diagram at the head of this article depicting the sources of profit we have not included the value of service labor. The diagram represents only merchandise sales. Up to this time it has been more difficult to obtain satisfactory estimates of the service labor volume than of merchandising volume. It is known, however, that the figure is large and constantly growing.

The National Standard Parts Association has calculated that for every 40 cents spent for replacement parts, there is expended 60 cents for labor. On this basis the annual service labor bill of the American car owners would approximate \$1,400,000,000, all of which must pass through the hands of service establishments of the country.

It is only reasonable that the agencies providing the investment

and facilities for rendering a service of such magnitude to car owners should be able to retain a fractional part for profit.

The use of modern equipment in the shop is helping efficient dealers to make more profit. Machines and tools which have been especially designed for automotive service reduce the wasted time and help to standardize maintenance operations, with the result that the shop can control its operating cost and may reasonably expect to operate at a profit.

The sources of profit are waiting to be tapped.

# Texas Dealer Sells Unused Chains of

## USED CAR SENSE

*Almost invariably the automobile dealer who is not making the profit he should make lays it to the losses he suffers on used cars taken in trade. Knowing the thief that steals his profits he should be courageous enough to attack it and banish it. Intelligence and courage are required. The dealer who lacks these qualities has a poor outlook ahead. This article tells how the Shelton Chevrolet Co., of Dallas, handles used cars, and on other pages are published other ideas for profitable merchandising of used cars.*

**H**ERE'S what the Shelton Chevrolet Company of Dallas, Texas, has done in revolutionizing its used car business:

1. Divorced the used car from the new car business.
2. Established a chain of five used car stores in various parts of the city.
3. Turned its old repair shops into a large and thoroughly equipped reconditioning plant for used car stores.
4. Perfected a system of accounting whereby the profit or loss on any used car may be determined at any time.
5. Created the office of general manager of the used car chain stores and placed an experienced automobile man in charge of that end of the game.
6. Discontinued selling used cars at the new car stores and new cars at the used car stores.
7. Made "Shelton Stores—All Over Dallas" a slogan or by-word with most used car buyers of Dallas and vicinity.

Here are the high spots in "Bill" Beazley's scheme for reducing losses in the used car end of the game of the Shelton Chevrolet Company:

1. Allow what the car is worth in a trade.
2. Recondition the car in your own plant.
3. Add the reconditioning cost to the allowance price.
4. Tack on your profit for expense of selling the reconditioned car.
5. Don't sell used cars—sell unused transportation.
6. Never accept less than one-third of the reconditioned car price as the down payment.
7. If you don't sell the car in thirty days reduce the price and move it out of stock.
8. When you sell a car keep it sold through friendly interest in the owner and his machine.
9. Use horse sense at every stage of the game.

**T**HE Shelton Chevrolet Company of Dallas, Texas, of which Ray Shelton is vice-president and general manager, is not worrying much about the used car problem.

It has worked out a system which is proving highly satisfactory and about the only problem it now has is getting sufficient used cars to supply the demand.

The Shelton Chevrolet Company has divorced its used car from its new car business. It has established a chain of five used car stores in various sections of the

*All Trade-in Vehicles Are Reconditioned to Give*

*By J. A.*

city, created a position of general manager of the used car chain stores and placed J. W. ("Bill") Beazley, Jr., an experienced automobile man, in complete charge of that end of the business. It has converted its old repair shops into a large and thorough reconditioning plant for used cars and perfected a system of accounting whereby the profit or loss on any used car may be determined at a glance at any time. It sells no used cars in its new car stores, or new cars in its used car stores.

Its reconditioning plant does no work except on cars to be sold in the chain of used car stores. From 12 to 15 experienced mechanics and body and fender men are employed in the reconditioning plant. They are paid a straight weekly salary.

In the reconditioning plant all mechanical work is done on a flat rate basis and all parts and accessories used in putting used cars in salable condition are charged to the used car at regular prices. Both these items show profits.

### Must Move in 30 Days

As Mr. Beazley is in complete charge of the used car business, he passes on allowances for used cars taken in trade on new cars where the salesman and buyer can not agree, as well as for used cars accepted in trade for reconditioned machines. He determines what is necessary to put a used car taken in a trade in first class condition, has the work done, sets the price on the reconditioned car and sees that it moves off the floor in 30 days.

**CHAIN OF**

**\$ Shelton's CHEVROLET Store \$**

**Used Cars "All over Dallas"**

---

**STORE NO. 1**  
Shelton Chevrolet  
2401 Main St. 7-3165

1926 Ford Coupe. Fully equipped. Good tires, new Duco in late Ford color ..... **\$325**

1926 Ford Touring. Five good balloons. Shows very little wear ..... **\$250**

**STORE NO. 3**  
Shelton Chevrolet  
2106-8 Main St. 7-5059

1926 Essex Coach—Practically new rubber, fully equipped, jam-up mechanically. License paid ..... **\$495**

1926 Chevrolet Coupe—Five good balloon tires, fully equipped. The less ..... **\$495**

*How used cars in the Shelton Chevrolet chain stores are advertised*

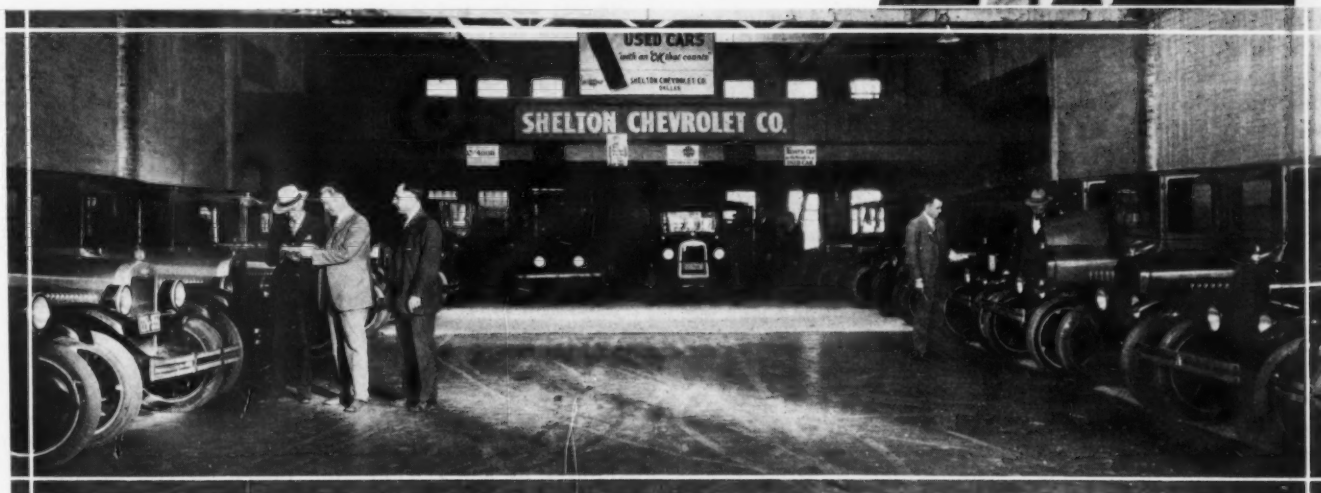


# Transportation Through Special Stores

*ditioned and Painted and Guaran-  
Satisfaction*

WEBB

J. W. Beazley, Jr.,  
manager Shelton  
Chevrolet chain of  
used car stores



*Inside one of the Shelton used car stores. Every car offered for sale is clean and repainted and in good mechanical condition*

All salesmen in the used car stores are employed on a commission basis. These stores do no repair work. They sell no parts or accessories. Their business is selling used cars. Every salesman in each of Beazley's five used car stores knows what cars are on the floor of all other stores and at what they are priced. The stores are connected with each other and with the main office by private telephone wires.

The accounting system is simple. When a used car is taken in trade it is given a stock number on the books. Opposite that stock number is the allowance price of the car in one column, the cost of reconditioning in another and a blank space for the price at which the car was sold when the transaction on that car is closed. A card index carrying the same stock number, shows the make and model of the car, engine and other essential numbers, the parts and labor necessary to reconditioning and the requisitions for such parts and accessories, name of former owner, etc.

Thirty days is the limit Mr. Beazley has placed on any car for selling it. If the vehicle is not sold in 30 days after it is put on the floor of one of the chain stores, he reduces the price, takes his loss and moves it out. He does not price his reconditioned cars above the market range to begin with and he has little reducing to do.

Mr. Beazley says under the new system he has reduced used car losses until his company is showing much greater profits. He is selling an average of 250 used cars monthly, which means between \$600,000 and \$800,000 worth of reconditioned cars annually. He says he will establish more used car stores as conditions warrant.

## *Has Reduced Losses*

He attributes the reduction in used car losses and the ability to sell a large number of reconditioned cars to several things. Among them are: Allowing what the cars are worth in a trade, reconditioning them in his own plant, a central accounting system which takes care of all transactions, buying parts and accessories, tires, etc., in large amounts and paying cash for them, personal supervision of the business, giving the customer a square deal, allowing the prospective buyer to see the complete records of the car he wants, which shows the former owner's name, when and from whom bought, how many miles driven, what The Shelton Chevrolet Company allowed for the car in a trade and just what price—and last, but not least, using horse sense at every stage of the game.

Mr. Beazley says when one of his used car stores sells

*(Continued on next page)*



# MAKES HIS USED CARS PAY THEIR WAY

a reconditioned car and tells the buyer that car will give certain performance, that car must give the performance or he will make it do it without extra cost to the owner. His policy is that the used car buyer is entitled to the same consideration given the new car buyer. When he sells a used car he makes it a point to know the owner. He keeps the car sold by taking and maintaining a friendly interest in the owner and his car.

## *Stores Painted Alike*

All used car stores are painted orange and blue. The firm name and other advertising designs are identical. Mr. Beazley uses classified columns of the daily papers for his advertising. When he puts a tire cover on a spare for one of his used cars it carries the chain store design.

Here is how the system of handling used cars under the Shelton Chevrolet chain store plan operates:

A 1924 Ford coupe is offered in trade for a new Chevrolet. The Ford owner wanted \$175 allowance on the new car. The salesman offered him \$125. The deal was about to fall through. Mr. Beazley was called. He thoroughly inspected the Ford. He drove it at various speeds around several blocks. He offered to split the difference with the owner and make the allowance \$150. The trade was made and the Ford was sent to the reconditioning plant. Here it was again checked for repairs necessary to put it in first class condition. Then it was sent to the steam cleaning and washing department where it was thoroughly cleaned and washed and returned to the repair rooms.

The engine was pulled from the frame, taken apart and inspected. The valves were ground, the carbon removed, a new ring or so put on pistons, the transmission adjusted and repaired, the carburetor cleaned and adjusted.

While this was being done another crew of mechanics pulled the rear end, placed it on the running racks, ascertained the trouble in that section of the car, took it down, made the repairs and moved it back in position under the coupe. Still another crew of mechanics had pulled the front axle, tightened up connections, put in some new bushings, adjusted and repaired the steering assembly.

The radiator had been sent to another department where it was cleaned and repaired. New hose connections were placed.

Another crew of men was inspecting, repairing and adjusting the generator, starting motor and battery at the same time. These are three things which Mr. Beazley sees are thoroughly overhauled and built up on any used car he handles.

When the car was reassembled it was sent to the fender and body men. Here the fenders were straightened and some dents taken from the body. The upholstery was renewed and the car retopped.

## *Used Cars Are Repainted*

The coupe then moved into the paint shops where it was finished in the latest color combinations of Ford enclosed cars. Even the tires were painted. While the paint job was being done the battery was removed and rebuilt or recharged as needed. It was replaced and the car given a thorough test to see that all parts

## *Many Chances for Service Jobs*

Here is a check-up suggested by the Olds Motor Works which should bring many profitable maintenance jobs into the shop if applied to the cars coming in daily:

"Now that spring is here and the highways and byways are calling is your car ready to give 100 per cent service during the coming touring season?"

"Has the anti-freeze solution been removed from your radiator and the radiator flushed?"

"Have you had the battery checked for proper charge and water level?"

"Is the generator charging properly?"

"Has the oil in the crankcase been changed to summer grade?"

"Have the transmission and differential lubricants been changed to summer grade?"

"Have the distributor points been checked for proper contact and gap?"

"Have body and other bolts been checked to offset disagreeable squeaks and rattles?"

"Has the chassis been thoroughly lubricated?"

"Have the front wheels been checked to prevent unnecessary wear on tires? (Parking at curbs and striking objects sometimes change the position of wheels.)"

were operating in tip-top shape. The coupe was then sent to the grease racks where it was thoroughly greased and oiled. It left the reconditioning plant without a squeak or rattle operated as well as it did when it was new and carried a service guarantee of thirty days.

The labor, parts and accessories tickets were then assembled. Mr. Beazley found the reconditioning costs amounted to \$55. That was added to the allowance price of the car, making the total cost on the floor of one of the used car stores \$205 for a Ford coupe finished in the latest colors and carrying a service guarantee. Mr. Beazley tagged the coupe at market price. In five days it was sold. A 1924 Ford touring car was accepted for \$50 to which was added \$25 in cash as the down payment. The remainder was distributed over 10 months, the notes bearing 10 per cent interest and the owner carrying fire and theft insurance to cover losses. The Ford touring went through the reconditioning plant. It did not have a thorough overhauling. The valves were ground, the transmission adjusted, the car washed and greased. The generator and starting motor cleaned and repaired, the battery built up and the car given a coat of paint. That car went to a used car store priced at \$75. It moved in ten days.

On both the trades necessary to close the deal on the new Chevrolet Mr. Beazley made a profit. Not all used cars sold in this chain of stores show profits. The majority of them do, however, and Mr. Beazley said the losses on the remainder are growing less and less as the system progresses. Mr. Beazley says he is not selling used cars, but unused transportation and that thousands of people are just beginning to realize that the conscientious, honest and well equipped used car stores can, and are offering two-third of the total transportation in an automobile for one-third of the price of the new one.

# PROFIT MAKING IDEAS *for* THE SHOP

## Checks Up on Every Job

THE Canton Motor Inn, Canton, South Dakota, has found it profitable to follow up every service job with a letter asking the customer to report on the work done for him.

Concerning the success of this plan A. L. Alhert, manager, says:

"The letter serves several purposes. In the first place, the fact that you appear to be interested in the job even after you have received your pay for it creates a favorable impression in the mind of the customer. Secondly, even if he feels that the job is nothing more than an ordinary one he will answer in your favor and the psychology of having him put it on paper is dollars in your pocket. Thirdly, it serves as a check on your mechanics and enables you to see your own shortcomings."

CANTON MOTOR INN  
AUTOMOBILE SERVICE  
CANTON, SO. DAK.

Dear Sir:

Recently your car was in our shop for repairs. We are interested in this job now just as much as when you brought your car in. If there is any bit of service or workmanship that is anything but satisfactory, we want to hear about it. If the job is O. K. we will be tickled to hear from you.

We are striving to improve ourselves. You can help us to give better service by answering the following questions and returning them in the enclosed stamped envelope.

1. Did the man that first met you as you drove in meet you in a courteous and businesslike way?.....
2. Were you given attention as soon as you drove in, or did you have to wait? .....
3. Did our shop look like an efficient place of business manned by men who knew their business?.....
4. Were the shop mechanics clean or dirty?.....
5. Were equipment and tools such as to give your car an efficient repair job? .....
6. Were you courteously treated by mechanics?.....
7. Was the car clean or greasy when it went out?.....
8. Were our charges fair in your estimation?.....
9. Was the job generally satisfactory?.....
10. General remarks or suggestions.....

We do not object to an owner staying with his or her car while it is being repaired, but we do discourage anyone else loafing in the shop and wasting the mechanics' time with talk.

Please take your pencil right now and fill this out.

Very truly yours,

CANTON MOTOR INN  
By

ALA-A

*Circular letter sent to all service customers by the Canton Motor Inn*

## This Means Power and Speed



*This novel towing and wrecking truck helps to advertise the maintenance business of the Green Nash Corporation, Seattle, Wash. The locomotive design never fails to attract attention.*

## Complete Road Service



*"Red Hot Road Service" is no idle boast on the part of the Economy Tire Company, Oklahoma City, judging from the photograph we have just received.*

*Note the Weaver tire changer, which enables the service man to handle the toughest jobs with ease and in a fraction of the time usually required, without danger of injury to rims, and the tank for inflating tires.*

## Post Card Reminder Brings Them In

THE Brownell Motor Company of Birmingham, Ala., dealers in Dodge Brothers cars, have a good method of bringing their customers into their service department, as witness the card which accompanies this brief article. The boast of the service department is that they never let a customer go without reminding him that it is his duty to his car to remain a customer of the Brownell Company.

The card is headed, "We Have Been Looking for You," and goes on to say that the records of the shop show that the car has not been in the shop since a given date, the date being filled in in a blank space left for it. The card announces that the service force has been increased to meet all of the demands of Dodge cars in Birmingham and ends with a sentence urging the old customer to come in and have the car looked over. It is a very effective way of keeping the car owner reminded that there is in the city a shop devoted particularly to service on cars of the make that he is driving.

## WE HAVE BEEN LOOKING FOR YOU



Our records show that you haven't had your car in our service station since 9-28-26  
We have increased our force of Dodge specialists so as to render most prompt service.  
Your oil should be changed every 500 miles.  
Let us Alemite and oil your car.

**Brownell Auto Co., Inc.**

Main 4631

24th Street at Avenue E

*Post card used by Brownell Company to bring in negligent customers*



# How Much

*Business Analyst Shows That the Dealer Is Seven Per Cent of*

*By L. DOW*



L. Dow Thompson, head of the Dealer Development of the Overland Motor Co., of Chicago, and author of the accompanying article on "How Much Capital?"

G. V. Orr, president Overland Motor Co., Chicago



**A**BOUT two years ago, after having had many requests from dealers as to how much of an investment they should have and also inquiries from members of our own organization in regard to how much money a prospective dealer needs to operate various sized franchises, we decided to make a survey of our dealers' financial statements to get an average of their investment, or to determine some basis upon which we could make justifiable recommendations of what a dealer's investment should be.

We were interested in a yardstick that was simple, accurate and easily applied. Our first thought was to look over the financial statements to find how much money our dealers were using.

One dealer who sold \$107,550 worth of automobiles, parts, and supplies, the year before was operating on an

investment of \$15,465. This investment amounted to 14 per cent of his total sales. Another dealer with double the sales volume showed an investment of \$14,703, or \$762 less than the first dealer. The percentage of investment to sales for this dealer was less than half that of the first dealer. A third financial statement showed the operations of a dealer with an investment of \$15,895 and with sales of \$345,000 a year. This dealer was operating on an investment of less than 5 per cent of total sales.

As we went through the stack of financial statements we decided that no logical percentage of investment for sales could be determined without further analysis. The percentages ranged from as low as two per cent in a very few cases to as high as 40 per cent for some of the exceptionally well financed dealers. If after making this survey of our dealers' financial statements we would have answered the dealer's question as to how much of an investment he should have we would have found it necessary to reply "That all depends on you. If you have \$15,000 to invest we have ample proof here to show you dealers doing a business ranging from one hundred to three fifty thousand dollars a year on that amount of money."

## *Small Investment Means High Interest*

The question then arose as to whether the minimum percentage of investment to sales would not be the most desirable one to use as a yardstick. If one dealer could operate an automobile business on \$5,000 which it took another dealer \$10,000 to swing would it not show that the dealer with the smaller investment was

the more efficient? This led to a study of the operating statements of these dealers to find out how each was operating from the standpoint of profits. Our analysis showed that invariably dealers with small investments paid lots of interest. They found it necessary to borrow large sums of money throughout the year and their interest expense being such a large item, cut down the figure of net profit considerably.

The operating statements further showed used car losses in excess of those dealers who had ample funds. This was accounted for by the fact that these dealers often disposed of used cars at a sacrifice in order to pay pressing obligations. Had they been able to hold the used car until it could have been sold at the market price they could have obtained a reasonable amount for it. But, when the showdown came with the Satur-



# CAPITAL?

*Ideal Investment for the Automobile  
Total Annual Sales Volume*

## THOMPSON

day payroll it was necessary to dispose of some of the merchandise in order to write the weekly checks.

A further analysis of these dealers' financial statements made clear the reason that they could operate on such a small amount of money. The cash balance was low as also were the inventories. These dealers were not able to stock new cars, used cars, parts, accessories, gas and oil in sufficient quantities to fill their customers' wants with the least possible delay. Because they could not finance a representative line of cars they lost business to other dealers who had good inventories. This meant reduced profits for the under-capitalized dealers, while the dealers with sufficient capital benefited tremendously with their adequate inventories.

We found that the dealer who operated on a shoe string was usually tied up. A good deal of the time he couldn't buy, he couldn't sell because he couldn't handle the used car, he couldn't hire and he couldn't advertise.

### *Hampered by Financial Worries*

A visit to a number of these dealers with small investments afforded proof of the lack of efficiency in their operations. Some dealers got by on a small investment but their financial condition was reflected in the organization. The employees, sensing the fact that their employer might not be able to remain in business, were on the lookout for other positions. Necessarily they were not giving their best energy to the dealer for whom they were working. Also much of the dealer's effort was expended in figuring how he would meet the payroll and finance purchases. Whereas, the dealer amply financed had his hands free to pitch into sales activities.

Of course our conclusion from the survey of these dealers who were operating on a small percentage basis was that a slim investment begets a slender profit. To answer questions as to how much an investment a dealer should have we were aware that our answer should cover an investment adequate to assure a profitable operation and to relieve the dealer of any financial worries. The final conclusion then as to what a dealer's investment should be was based on the operations of the dealer who had sufficient finances to carry a good bank balance and the necessary inventories without having to resort to a large amount of borrowing. But why a dealer should need an investment amounting to 45 per cent of sales when we had some good dealers operating on one-sixth of that amount called for further investigation.

One dealer's situation whose financial report showed an investment of \$219,182.20 and sales of \$525,970 (Sch. I.) we decided to analyze. The ratio of investment to sales in this case amounted to slightly over 41 per cent. In looking at the financial statement the

THE author of this article, Mr. L. Dow Thompson, is head of the Dealer Development Department of the Overland Motor Co., of Chicago, which is a factory branch of Willys-Overland, Inc. When Mr. G. V. Orr, president of the Overland Motor Co., decided to inaugurate a department to help his dealers improve their business methods and make more money he called upon Mr. Thompson whom he had known for many years as a keen business analyst. The Dealer Development Department was established about two years ago and Mr. Orr states that it has been the means of helping many Willys-Overland dealers in his territory to put their business on a sound and profitable basis.

After completing his high school education Mr. Thompson attended the University of Chicago where he received a master's degree. Since that time he has been actively engaged in the business world.

reason for the large investment was soon apparent. The outstanding item in the current assets was notes receivable. This dealer was handling a good deal of his retail financing with the resources which he had invested in the business. Another large figure was in fixed assets. It showed land and building valued at \$104,015.44. Since only a few dealers finance their own retail paper and not all of them own the building in which their business is operated we removed these assets from the financial statement and also an equal amount from the investment, as shown on their report. This left, as shown on schedule II an investment of \$37,711.49 in what we may term the commercial operations of the business. By this we mean the money used in the purchase and sale of new cars, used cars, parts, accessories and service.

### *Analyzing the Statement*

It was necessary to remove these assets from the financial statement in order to get figures which would be really comparative. Even with those dealers who do a considerable part of their own retail financing there is no relationship between the amount of notes which they carry and their total sales. A dealer selling \$100,000 worth of cars may carry as many notes as a dealer selling two or three times that much. The same is true as regards land and buildings. There seems to be no relationship between the investments in land and buildings as shown by our dealers' statements and the amount of merchandise which they sell. The fact that some dealers own their own buildings and carry a large amount of notes accounted in a good many cases for the percentage of investment to sales amounting to from twenty-five to fifty per cent. The removal of these assets from the statement seemed logical also when it is considered that the return on land and buildings is figured on a much different basis than is the expected return from the automobile business. The income from land and buildings is known as rent. The

*(Continued on next page)*

# How Much Capital Does the

## SCHEDULE I

### CURRENT ASSETS

Cash .....	\$ 2,094.47
Accounts receivable.....	2,545.00
Notes receivable.....	76,737.27
Mdse. inventories.....	31,535.90
<b>Total current assets.....</b>	<b>\$112,902.64</b>

### FIXED ASSETS

Land and buildings.....	105,015.44
Furniture equipment.....	3,502.50
<b>Total fixed assets.....</b>	<b>108,597.94</b>
<b>Total assets.....</b>	<b>\$221,500.58</b>

### LIABILITIES

Accounts payable.....	2,318.38
INVESTMENT .....	219,182.20
<b>Total liabilities and investment</b>	<b>221,500.58</b>
<b>Total sales .....</b>	<b>525,970.00</b>
<b>Investment to sales.....</b>	<b>41.6%</b>

This schedule shows the financial statement of a large dealer whose investment amounts to 41.6 per cent of his annual sales. This statement includes notes receivable and land and buildings. In Schedule II the same statement is presented with notes receivable and land and buildings taken out to more properly show the capital required for actual commercial operations.

(Continued from preceding page)

receipts from notes is called interest and the revenue from the automobile business is represented by the sales figure. Each type of investment varies in the per cent of profit according to the conditions surrounding it.

This dealer's percentage of investment to sales after we had determined the investment in commercial operations amounted to slightly over 7 per cent, although the statement we had received showed an investment of 40 per cent.

We had taken it for granted at the start that the investment should be based on total sales and we proved this by comparing the inventories of the large dealer with the small dealer. As inventories represent a good part of the investment they were the deciding factor in regard to the variations in investment.

Although it may seem that the smaller dealers should carry a proportionately larger inventory, we found that it was not advisable for them to do so. Inventories that they were supposed to carry in each case, as determined by the factory, were based on sales volume. This being the case the logical means for figuring the investment was on the basis of total sales.

### Investment 7 Per Cent of Sales

From our survey, which included a determination of adequate inventories for the dealer and a separation of all items which were not essential to the commercial operations, we found that the investment should amount to 7 per cent of total sales. In most businesses this will figure 10 per cent of new car sales, as, on an average, 70 per cent of the total volume represents new car sales volume. For the dealer who sells \$100,000 worth of new cars an investment of \$10,000 will be needed.

If his total sales are \$142,000, as they probably will be, 7 per cent of this amount gives the same figure of \$10,000.

After determining this percentage figure on the basis of the inventories that the dealer should carry rather than on the average of our dealers' investments we decided to check it against the operations of some of our dealers whom we thought would be adequately, but not overly, financed. One dealer who started in business a couple of years ago with an investment of \$20,000 we watched quite carefully. He was a man who had years of experience as an automobile dealer and we were of the opinion that he would invest just about the right amount. He had ample resources and could have invested \$100,000, but when we received his first financial statement it showed an investment of exactly \$20,000. We closely watched his progress from month to month. The dealer started with cash and no inventories. It was a few months before his investment of inventories was up to the average, but as soon as he was operating on an average basis we kept particular note of the cash account. In no month did this go below \$3,500, which we considered a good balance for that size dealer to maintain. At the end of the year his total sales amounted to \$292,908, of which the original investment was 6.8 per cent. This dealer had almost uncannily confirmed the basis of our previous survey which proved that the investment should equal 7 per cent of total sales.

The statement, discussed previously, of the dealer with \$525,970 of sales and an investment of \$37,711 shows that this dealer operates on an investment of only a few hundred dollars over the 7 per cent yardstick rating.

## SCHEDULE II

### COMMERCIAL OPERATIONS

#### CURRENT ASSETS

Cash .....	\$ 2,094.47
Accounts receivable.....	2,545.00
Mdse. inventories.....	31,535.90
<b>Total current assets.....</b>	<b>\$36,175.37</b>

#### FIXED ASSETS

Furniture and equipment .....	3,852.50
<b>Total assets.....</b>	<b>\$40,029.87</b>

#### LIABILITIES

Accounts payable.....	2,318.38
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#### INVESTMENT

Total investment.....	37,711.49
<b>Total liabilities and investment</b>	<b>40,029.87</b>
<b>Total sales .....</b>	<b>525,970.00</b>
<b>Investment to sales.....</b>	<b>7.2%</b>

Revised schedule of the same dealer's financial statement as that shown in Schedule I. In this schedule the items of land and buildings and notes receivable have been removed, showing capital actually used for sales and service activities is 7.2 per cent of total sales.



# Automobile Dealer Need

Another dealer, whose statement is shown in schedule III, we had told that an investment amounting to 7 per cent of total sales was sufficient. This dealer said he was doing about \$100,000 business and had considerably more than 7 per cent of his total sales invested. He furthermore said that he was cramped for funds practically all the time and could not carry on his operations with the financial freedom which he wished.

We went over this dealer's statement with him. As item by item was checked we noticed the ones which were particularly out of line. This dealer's assets included large figures of notes and accounts receivable, a burdensome used car inventory, and a parts stock which was twice the size that he should carry. The fixed assets also included land and buildings.

After we had taken out the assets which are not figured in the 7 per cent ratio this dealer was operating on a 13 per cent basis, but with a number of his inventories excessive. After showing him the amount of each item he should carry, based on total sales volume, he concluded that his business would be amply financed as soon as he liquidated many of his accounts and notes and a considerable part of the used car inventory. This analysis showed quite conclusively that good business judgment cannot be divorced from the size of the investment needed. If only logical and necessary inventories are carried a dealer can very successfully operate on an investment of 7 per cent of total sales or 10 per cent of new car sales and adequately handle his business without financial embarrassment.

Seven, lucky seven, proves to be the percentage that investment must bear to total sales if the dealer is to be rightly financed.

## SCHEDULE III

### CURRENT ASSETS

Cash .....	\$ 105.42	
Accounts receivable.....	2,175.51	
Notes receivable.....	3,620.18	\$5,901.11

Inventories:		
New cars.....	5,465.00	
Used cars.....	7,126.00	
Parts .....	2,542.75	
Acc. gas and oil.....	795.40	15,929.15

Total current assets..... \$21,830.26

### FIXED ASSETS

Land and buildings.....	15,000.00
Furniture and equipment .....	2,727.50

Total fixed assets..... 17,727.50

Total assets..... 39,557.76

### LIABILITIES

Accounts payable.....	2,261.08
Notes payable.....	6,540.30
Mortgages .....	7,500.00

Investment .....	16,301.38
	23,256.38

Total liabilities and investment..... 39,557.76

Total sales .....

Investment to sales..... 24.5%

This dealer was advised to keep his capital investment down to seven per cent of his total annual sales. He said it could not be done and at the end of the year presented this statement showing that the capital he was using was 13.9 per cent of his total sales, or almost double what it should have been. Upon analyzing the statement Mr. Thompson took out the items of notes receivable and land and buildings, but still the capital investment was about 10 per cent of sales. Further investigation showed certain inventories were excessive and when these were adjusted his capital investment was brought to very near the ideal figure.

## 25,000 Dealers Report Tire Stocks

WASHINGTON, April 30.—The average American tire dealer carries in stock 68 casings, 33 balloon casings, 144 inner tubes and 24 solid and cushion tires, it was reported here this week by the U. S. Department of Commerce following its sixth semi-annual survey of stocks of tires and tubes.

The survey showed that on April 1 the average stocks held by dealers were 4.9 tires higher than a year ago and 6.6 tires higher than two years ago. Stocks of balloon tires show an increase of 50 per cent over April 1, 1926.

Inner tube stocks were lower than in 1926, but higher than for 1925. Less than 1,500 dealers carry more than 100 casings in stock, the greater number carrying from 10 to 25 at a time.

This year 25,867 dealers reported a total of 1,780,034 casings in stock, as compared with 2,056,472 reported by 32,184 dealers last year. A total of 17,472 dealers reported 591,419 balloon casings in stock, as compared with 399,808 carried last year by 18,284 dealers.

Reports of 25,452 dealers showed 2,920,584 tubes in stock, as compared with 3,839,799 tubes last year reported by 32,112 dealers.

A total of 31,083 solid and cushion tires were reported this year by 1,274 dealers, as against 50,230 carried last year by 1,866 dealers.

## Outdoor Used Car Display



The used car lot of C. B. Bellows with a new car displayed in glass enclosed booth

DISPLAYING his good used cars in a neat and orderly open lot that is of convenient access has proved profitable for C. B. Bellows, Dodge Brothers dealer, Long Beach, Cal. A unique feature of this lot is a glass enclosed display booth in which a new Dodge Brothers car is always shown. This booth is brightly lighted at night. It serves not only to draw attention to the used car display, but also to turn the interest of certain prospects to the possibility of purchasing a new car instead of a used one as they had planned.



# For Profit Consider the Motoring Tourist

By C. F. WRIGHT

*Automotive Jobber and Director of the A. E. A.*

**L**ATE spring and summer bring dazzling opportunities for those engaged in the automotive equipment industry. With all due respect to the alertness of the "live wires" in the industry, it is safe to say that in the past dealers in accessories and parts and other equipment have not fully grasped these opportunities. It may not be amiss to point out that mistakes or negligence in the past should serve as a lesson for them this year.

Late spring and summer are the seasons when the motoring tourist is in his full and undimmed glory. He is just about everywhere that an automobile can travel safely and very often where the car risks itself and those in it. The motoring tourist is out to have his annually scheduled fun. He wants nothing left undone to make his outing successful in every respect. Of course he does not want to throw his money to the birds, but he certainly does want to have his car properly equipped for all emergencies.

In the past he has had to do his planning pretty much himself. Dealers in equipment have not helped him very much, taking it for granted that he had done everything that was to be done toward fitting his car as it should be fitted. And very often the motorist has come to grief out in the open because he failed to install this or that accessory or part. Perhaps he didn't know the thing he should have had was available, or perhaps, in his eagerness to get started, he didn't think of it.

The purpose of this article is to impress upon the dealer the importance of being in a position to meet every need of the motoring tourist. Service and garage stations on every highway should give the cars of the motoring tourists a careful "once-over" and make the proper suggestions to the car-owners. It is a wonderful opportunity for the dealer to display his salesmanship. There is no question that the field is rich in possibilities, and results are definitely up to the gleaners.

## Cars on the Road Make More Business

*Forty million people will spend their vacation on the open road this year, according to an estimate prepared by the American Automobile Association. This is a 10 per cent increase over last year. The A. A. A. says:*

*"Of the 10,000,000 automobiles that will go touring this season a third will carry camping equipment and be used for outings of a month's average. Two-thirds of the caravan will remain en tour for about 10 days, but will depend on hotels for accommodations. It is calculated that the camping brigade will spend about \$1,000,000-000, or \$10 per day per car, and that the parties stopping at hotels will spend three times as much per day, which would bring their total to approximately \$2,200,000,000."*



C. F. Wright

For instance, the almost interminable strings of cars that will head for the annual Decoration Day races at the Indianapolis Speedway are going to be in need of many things that were overlooked before they got on their way. Every dealer and service man en route from any of the main contributing centers should have his stock of accessories and parts and such other things as the motoring tourist requires complete and attractively presented. And he should be on his toes ready to help the tourist with wholesome and helpful suggestions.

These late spring and summer opportunities are available all over the nation, even to the mountain passes and the roads that lead to the seas. The tourist travel to the national parks is growing rapidly each year, and the cars must be sturdily equipped to meet the trying emergencies. Just because dealers and service men have not had their stocks complete many a well-intentioned motorist has been brought to grief in out-of-the-way spots on the way to the national playgrounds of the North and Far West. As a result, just about all the joy has been taken out of their vacations.

There is every reason to believe that this year's motor-tourist travel will be in keeping with the great increases shown in former years, and when the dealer or service man on the highway meets the demands of the tourist, he not only benefits himself, but renders the service that should be afforded to the car-owning public.

# MOTOR AGE

## Flat Rate Manual

*A Compendium on What Flat Rate Is, How to Install the System, How to Sell Repair Work Under Flat Rate, and How to Pay Mechanics*

By C. EDWARD PACKER



### FLAT RATE FACTS

- ¶ Placing our mechanics on flat rates and selling work the same way has brought our shop from a regular and heavy loss to steady and satisfactory profits. The boys are making nearly twice as much money as they earned before.—Galveston, Texas.
- ¶ More jobs per day with fewer men has resulted from the use of flat rates. This holds our overhead down, pays the men more, and makes nice profits for the shop.—Los Angeles, Calif.
- ¶ More profits and business than ever before and an increase of 21.2 per cent in the mechanic's pay followed our installation of flat rates.—Minneapolis, Minn.
- ¶ Customer satisfaction and quick payment of their bills, together with more profits and better pay for the men have resulted from our use of flat rates.—Chicago, Ill.
- ¶ Since going on flat rates we have practically no come-backs. Also our boys make an average of 50 per cent more money.—Aurora, Ill.
- ¶ Flat Rates have practically eliminated labor turnover. The men are now perfectly satisfied.—Detroit, Mich.



Cash when the job is finished is the result of selling work on the flat rate basis

# What *Is* Flat

*A Simple Explanation of a Repair Shop System That Offers a Real Profit Opportunity to the Dealer and Garageman*

is all wrong. The world is all wrong, if we are to believe him.

Flat rates, intelligently applied, will do much to eliminate this type of customer. One price to all on the same job inspires confidence—and confidence is that great magnet which draws trade and builds profits.

The customer whom you like to serve favors flat rates.

## *How Flat Rates Help the Proprietor*

With present day competition and the cost of doing business the margin between profit and loss may be a very small one. It is here that the first advantage of Flat Rates becomes evident, for Flat Rates control the labor cost. No business man would think of putting a selling price on a piece of merchandise without knowing the cost of the article, but many shop operators do just that thing. They quote a fixed price on a finished job and have only a slight idea of what the labor cost will be. Flat Rates to the mechanics control the labor cost for the proprietor.

The mechanic is paid for what he does. He is in effect a partner of the firm and his earnings increase with the prosperity of the shop. The natural result is that he works consistently and intelligently. The effect of this is that the shop efficiency is greatly increased and more volume is handled with the same floor space, the same equipment, and frequently with less men. Supervision is reduced. This all works to hold down the overhead per job which is a highly important matter in making a shop pay.

This incentive for the mechanics to do more work is handled differently in different shops. In effect, however, it is the same, being extra pay for extra results.

Where a large volume of work is assured the piece work plan is ideal. Where the volume is irregular a piece work plan with a minimum earnings guarantee protects the men and goes a long way toward keeping labor costs in line with labor sales. Another plan is an hourly rate system in which the mechanic, by his results one month sets his rate for the next month. This plan is described in detail in another one of these Flat Rate articles.

Also the increased volume boosts parts sales proportionately and this, alone, is a source of good profit.

When quoted an exact price for a repair job the car owner knows just how much money to bring with him when calling for his car. Such knowledge prevents arguments when the bill is handed to him and results in his paying cash.

The feeling of freedom that comes from working under the Flat Rate method of payment is pleasing to the mechanic, but it is the pay envelope that makes the

**F**LAT Rate is an answer.

It is an answer to some of the most bothersome questions that have ever faced the automotive industry.

For the car owner it answers the question, "What will that repair job cost and when will my car be ready?"

For the shop proprietor it answers the question, "How can I make my shop more profitable?"

For the mechanic it gives a satisfying answer to the question, "How about a raise?"

Briefly, Flat Rate consists of putting a price tag on repair work, and knowing your cost for this work.

## *Does the Car Owner Favor Flat Rate?*

Whether or not the car owner favors flat rate depends on the kind of man he is.

Years ago, stores did not plainly price their merchandise. The same price was rarely quoted twice. Wrangling and haggling was resorted to to settle the bill.

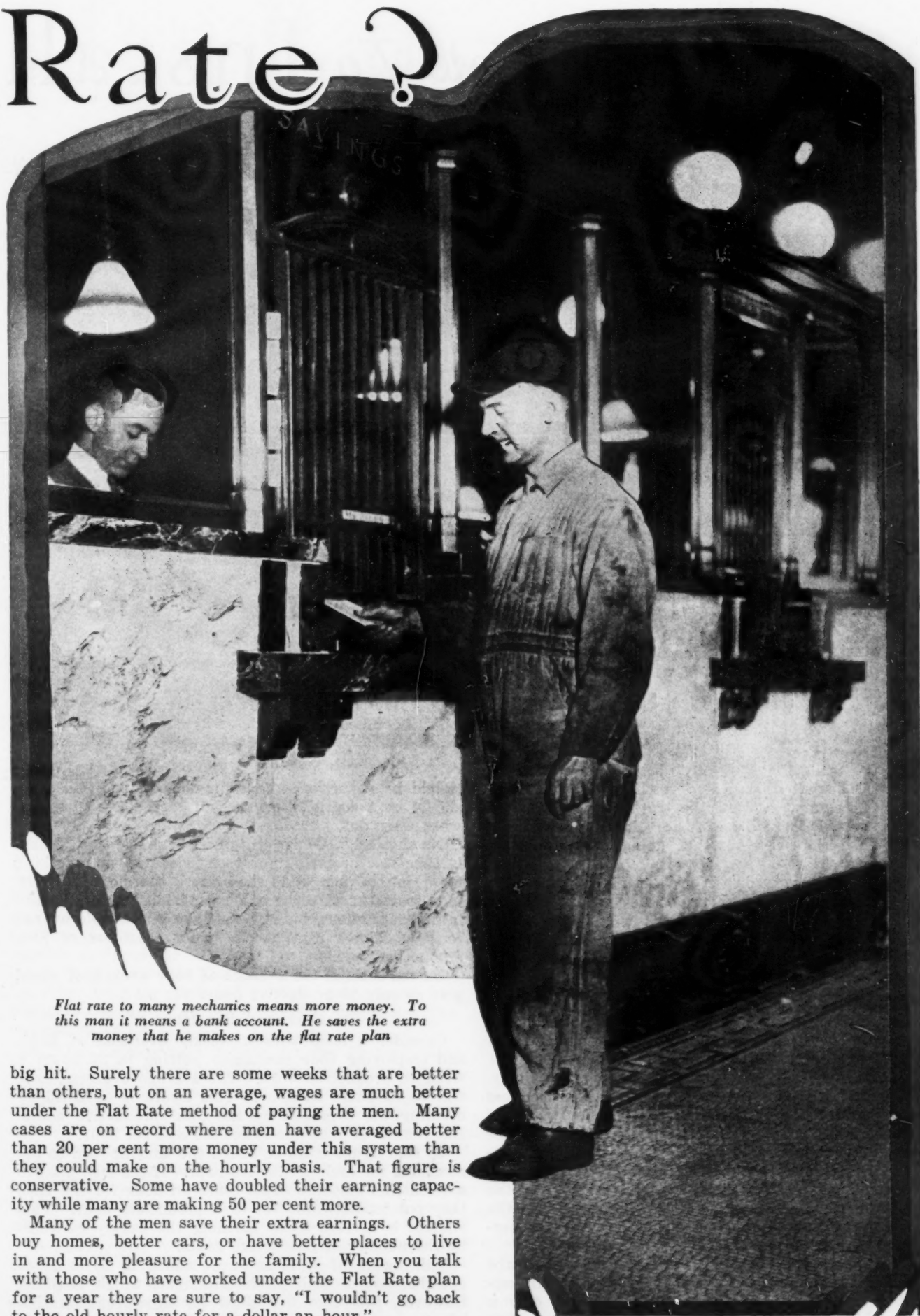
Progressive merchants saw the folly of this. The policy of one price to all became popular. This policy is the foundation of such stores as Wannamaker's, Field's and a host of other respected and profitable organizations.

As this change in merchandising took place the only customers who were disappointed were those who preferred to argue, and haggle and to find fault with the goods in order to beat the price down.

We have all seen this type in the service station. Nothing suits him. The price is all wrong. The work



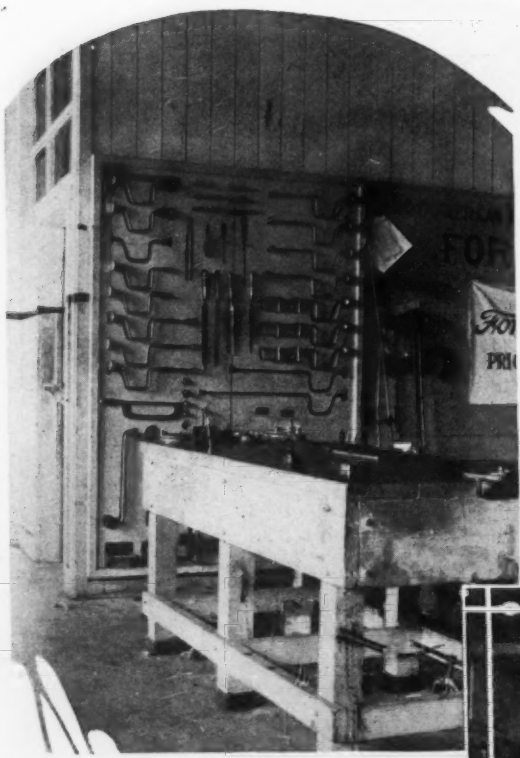
# Rate?



*Flat rate to many mechanics means more money. To this man it means a bank account. He saves the extra money that he makes on the flat rate plan*

big hit. Surely there are some weeks that are better than others, but on an average, wages are much better under the Flat Rate method of paying the men. Many cases are on record where men have averaged better than 20 per cent more money under this system than they could make on the hourly basis. That figure is conservative. Some have doubled their earning capacity while many are making 50 per cent more.

Many of the men save their extra earnings. Others buy homes, better cars, or have better places to live in and more pleasure for the family. When you talk with those who have worked under the Flat Rate plan for a year they are sure to say, "I wouldn't go back to the old hourly rate for a dollar an hour."

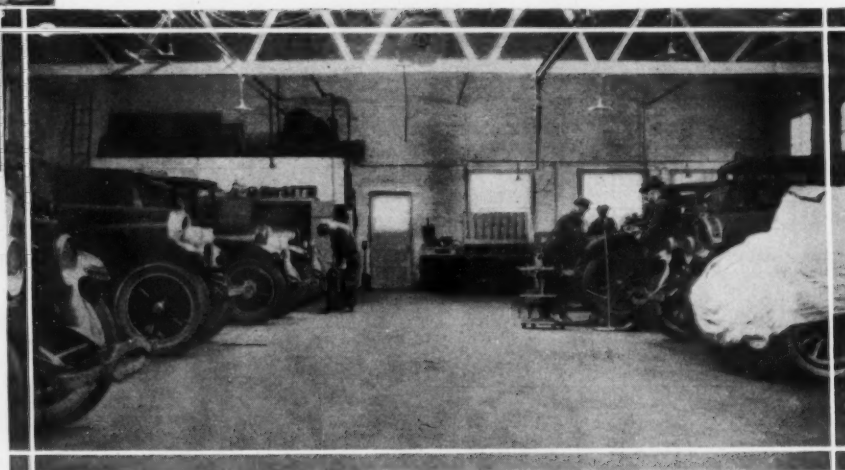


*Proper tools readily available are important in keeping mechanics satisfied and profits up when working on flat rates*

*Successful application of flat rates requires a clean, light shop*

# How To Install

*Mechanics Must Be Made Thoroughly Familiar with the Plan, the Shop Must Be Properly Equipped and the Overhead Operating Cost Must Be Known*



**T**O install Flat Rates intelligently it is first necessary to know the truth about your business, both with regard to volume of labor sales and the actual cost of doing that volume of business.

Too many concerns in the past have been content to blindly charge \$1.50 an hour, or any other arbitrary price, without knowing whether it was too much or too little. Determining a proper charge requires a knowledge of overhead and average productive hours.

## **Know Your Overhead**

In figuring overhead, most shop operators will include obvious items such as rent, light, heat, insurance, telephone, salary of shop foreman or any non-productive persons, janitor's salary, and a host of other items of expense in connection with doing business. But some fail to get a true picture of their business when they own the building that they occupy. Failure to charge a fair amount against the shop for rent, when the building is owned by the occupant, is incorrect because the building could be rented to someone else and would then bring in money. If more than the shop is housed in the building the charge against the shop for the item of rent should be based on the percentage of floor space that the shop occupies.

Other items of overhead, sometimes neglected, are the salary of the proprietor and interest on the investment in equipment. If the proprietor spends only a part of his time in the interest of the shop his salary

should be apportioned accordingly. In addition there should be a depreciation account to replace equipment when worn out.

No shop sells 100 per cent of its available time. There is time lost in caring for tools, cleaning up, checking from job to job, and when there are no customers' jobs to work on. The amount of idle time will vary in different shops, but for the sake of example we can consider 25 per cent as the average amount of non-productive time.

On the basis of the average 48 hour week, that would give us only 36 productive hours per man.

## **Overhead Per Hour**

Consider a shop with a weekly overhead of \$100, and employing four mechanics putting in 36 hours a week on productive work. The average overhead here will be 69 cents an hour. This figure is obtained by dividing the overhead by the total productive hours. But remember that this is not the cost per hour.

To this figure must be added the amount paid to the mechanic for each productive hour. If the men get \$40 a week this amounts to 83 cents an hour for the time they put in, but \$1.11 for each productive hour. This amount is arrived at by dividing the weekly earnings by the number of productive hours.

This figure of \$1.11 must be added to 69 cents to get the cost of each productive hour, which is \$1.80. However, this does not allow for any profit on this labor.



# Flat Rate System



In the service business 20 per cent profit is a small enough amount to figure on. Consequently with a cost of \$1.80 an hour for the labor we are selling, it will be necessary to add 36 cents to this to get the price per hour to the customer, which in this case is \$2.16. Of course this figure would not be used but possibly \$2.10 or \$2.25 would be substituted.

## How Hourly Price Affects Flat Rate

For those who are handling a certain make of car that has flat rates compiled for it by the factory, it is logical to use those rates. In the case of large service stations that have a heavy volume of business it is possible to figure the flat rates for that service station from the time records that have been kept. However, there are very few such independent stations and furthermore the calculation of the proper charges is a long and expensive job.

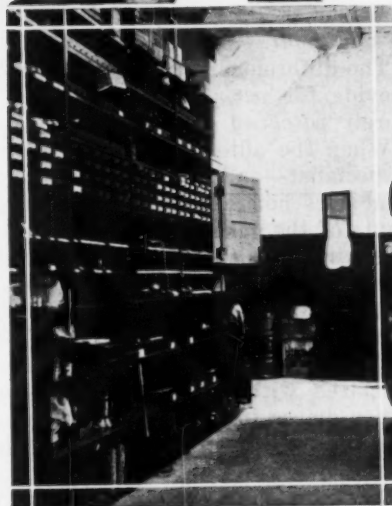
A Flat Rate price list such as the Chilton Class Journal Company's rapid Flat Rate Price List is of great help to many service station executives. Even for the dealer who regularly handles one make of car it is well to have a price list for work on other makes that may come in, or as a guide when working on used cars.

These prices are based on labor selling to the customer at \$1.80 an hour. From this fact it is plain that in some cases the price shown must be changed to fit local conditions.

In making use of these tables of labor charges the first thing to do is to figure out in the manner already explained just what must be charged per hour and then convert the price list accordingly.

*It is necessary to sell the mechanics on the advantages of flat rates. Generally an informal meeting at which all things are explained to them wins their confidence and support*

*Saving time by system in the stock room is another important matter*



Changing the published prices is easily done by means of the following table:

Rate per hour for your shop	Multiply Flat Rate price by this figure to get price for customer
\$1.00 .....	.555
1.25 .....	.695
1.50 .....	.833
2.00 .....	1.11
2.50 .....	1.39
3.00 .....	1.67

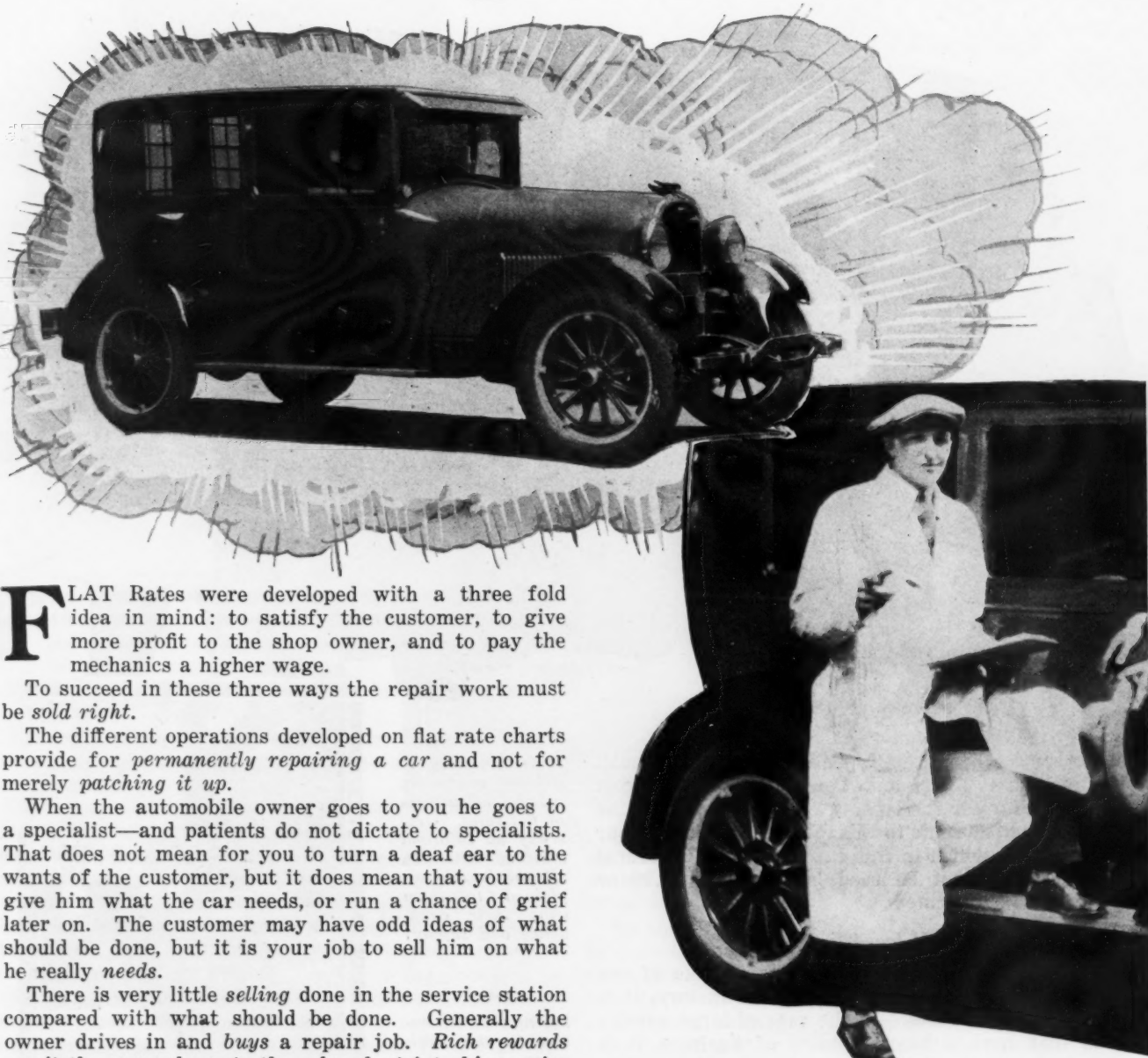
## Explaining Flat Rate to the Employees

It is unfortunate, but true, that the average service man does not enthuse over Flat Rates—until he has

(Continued on page 34)



# Selling Repair Work



**F**LAT Rates were developed with a three fold idea in mind: to satisfy the customer, to give more profit to the shop owner, and to pay the mechanics a higher wage.

To succeed in these three ways the repair work must be *sold right*.

The different operations developed on flat rate charts provide for *permanently repairing a car* and not for merely *patching it up*.

When the automobile owner goes to you he goes to a specialist—and patients do not dictate to specialists. That does not mean for you to turn a deaf ear to the wants of the customer, but it does mean that you must give him what the car needs, or run a chance of grief later on. The customer may have odd ideas of what should be done, but it is your job to sell him on what he really *needs*.

There is very little *selling* done in the service station compared with what should be done. Generally the owner drives in and *buys* a repair job. *Rich rewards await the man who puts the sales slant into his service talk.*

Selling a man something, however, does not mean loading him up with something that he does not need. It means calling his attention to a *need* in such a way that *he will want your services.*

## What SELLS the Job?

By appealing to the imagination of almost any car owner, selling of repair work is made easier than it would otherwise be.

Some of the basic buying appeals are, desire to save, pride of ownership, personal comfort, protection of self or family. By analyzing almost any repair job that may be needed it should be possible for the service man to build up a strong buying appeal in his talk. A few typical jobs with their corresponding appeals are listed in the following table:

### Repair Work Needed

Grind valves and clean carbon.

Oil and grease car and oil springs.

Wash and polish car.

Reline and adjust brakes.

### Suggestion to Use

Economy of gas, reduced wear by more even firing, pride in snappy performance.

Economy by reducing wear and comfort by making car ride better.

Preservation of finish and pride of ownership.

Protection of self or family.

Some may argue that the use of such selling tactics is foolish and that they are just a lot of high toned bunk. The fact remains, however, that this plan works—that is, it works to the extent that the service men actually apply it.

### "But Your Price Is Too High"

"But your price is too high," is a remark that some customers will make and that others will think if you sell a job that is really complete. Of the two, it is

# on Flat Rate Basis

*By Being Able to Quote a Definite Price for a Particular Operation  
the Service Man Is Frequently Able to Sell a More Complete Job*

much better when the customer openly charges you with quoting high prices.

Flat rates give the customer a clear idea of just what he is to get. The shop should be just as clear on what it is expected to do on any order. The service salesman should follow the order through (except in large shops

If your shop refaces all valves, narrows down and refaces the valve seats with reamers, polishes out the valve stem guides with an electrically driven brush, removes the carbon with a wire brush driven by an electric drill, carefully checks the tappet clearance, cleans and checks spark plugs and breaker points, cleans carburetor and vacuum tank screens, and adjusts the carburetor *you should tell the prospective customer.*

*Such work costs only a little more and is worth much more to the customer. You charge a higher price, but you offer a real value.*

## "How Much an Hour Do You Charge?"

The question of "How much an hour do you charge?" can generally be dismissed by the answer, "we do not charge by the hour, we charge a fair price for *results* instead of the length of time the work takes." Do not get into a discussion on what the charge should be an hour.

The tailor, the dentist, the building contractor, the barber do not sell their work by the hour and neither should you.

Automobiles are not built or sold to the customer at "so much an hour," and neither should they be serviced in that way. Knowledge, investment, and equipment are paid for by the buyer of a new car and the same things should be paid for when the car is serviced.

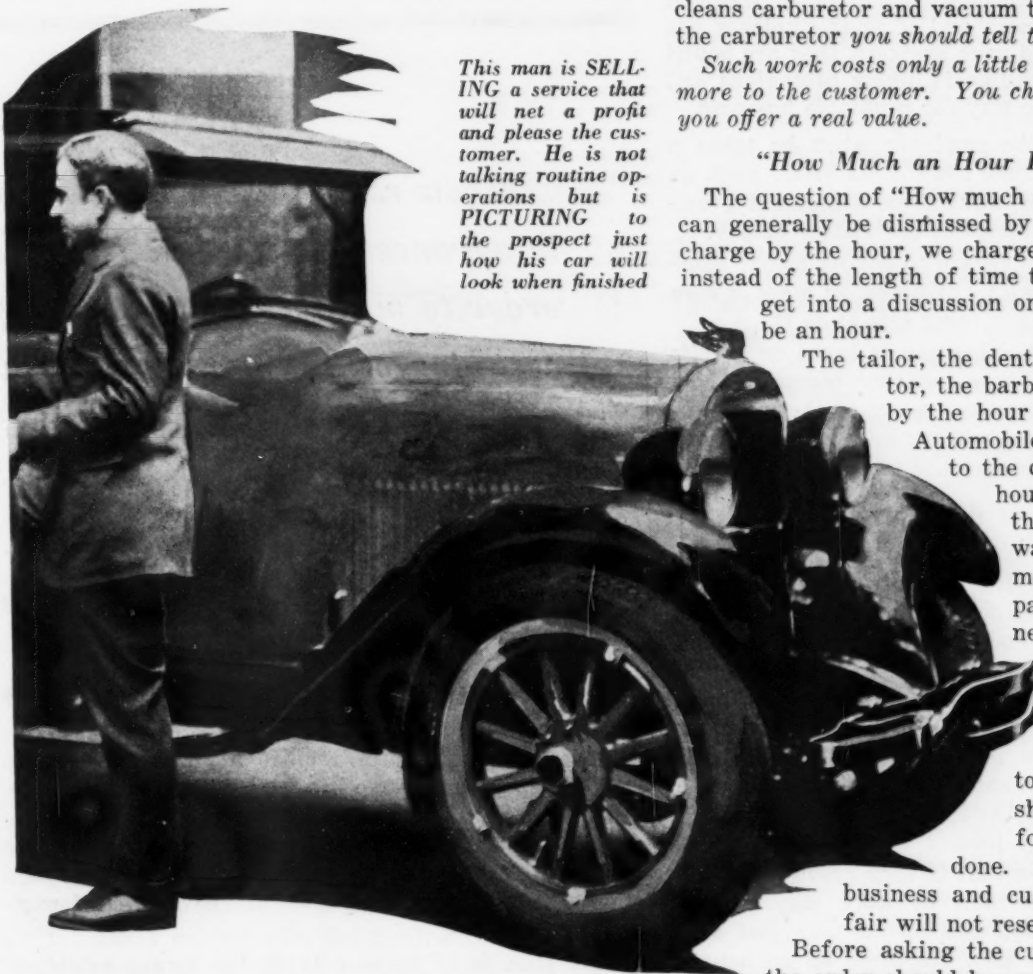
Whoever is assigned to meet the customers should get a signed order for all work that is to be done. That is only a matter of business and customers who mean to be fair will not resent the procedure.

Before asking the customer to sign, however, the order should be made out in full and a line drawn diagonally down from the last item on the order to where the signature is to be placed. That will indicate the proper place for the customer to put his name and will also be your protection against the argument that sometimes comes up to the effect that, "that last item was not on the order when I signed it."

Unless much experience has been had in the repair business, do not quote a price on parts required until an inspection has been made. A few rate schedules include the parts that are needed. That is a step in the right direction, but care must be used in quoting unless you are sure of yourself.

If the customer wishes to know what the entire bill will be arrange to have him drop in a little later, after the part is opened for inspection, or arrange to phone him when the inspection has been completed. Then the charge, *including material*, can be given.

*This man is SELLING a service that will net a profit and please the customer. He is not talking routine operations but is PICTURING to the prospect just how his car will look when finished*



where there are inspectors) and see that the work performed is just what was ordered.

By so doing he can be sure of satisfaction to all concerned.

You can't beat the "law" that you "never get anything for nothing." A thing is usually worth just about what you pay for it. Often by paying ever so little more you get a much better value. A high price, however, does not guarantee a high grade job, but a high grade job does merit a higher price. However, it is necessary to justify your price by telling your prospective customer the difference in the ways that service can be handled.

For example let us consider ways that a valve grinding and carbon cleaning job can be done. One shop may grind in only the exhaust valves, (many shops do only that) scrape out the carbon with hard scrapers that will scratch alloy pistons, and call it a job.



# How To Pay Mechanics

**T**HERE is no doubt that confidence is the foundation of all successful business. There must be the confidence of the customer that you can satisfy his wants. There must also be the confidence of your employes that your business offers them a good place to make a comfortable living.

The most direct way of building up customer confidence is by building up the loyalty of your employes. The people of the service department are in frequent contact with the customers and if your employes are filled with loyalty toward your business, they are bound to show it. Such a condition is highly contagious and does much to smooth the way for profitable business.

Loyalty is built by the employer when he takes a friendly and human attitude toward his men. Such an interest will include everything from a pleasant greeting in the morning to justice in the matter of pay.

"But what is justice in regard to paying men?" some may ask. *The right wages are based on what a man does and not on how long it takes him to do it.*

When a man knows that his pay is based on results it is interesting to see how industry increases, how intelligence is shown, how the quality of the work improves, and how the men will actually ask for more work to do instead of dodging the jobs.

## Comparison of Wage Systems

*Hourly Rate and Bonus System.* On the hourly rate and bonus system of paying the men, they are hired on a fair hourly scale depending on local conditions and on their experience and ability. Instead of being paid by the clock, however, they are paid according to the jobs turned out. That is, a certain job may be rated as requiring 8 hours. If this is turned out in a satisfactory manner in 6 hours the mechanic is paid for 8 hours just the same. In this manner some men can increase their pay and the shop profits greatly, by being able to sell more jobs.

A variation of this plan that is very practical in the smaller places where the flow of work may not be steady enough to hold good men on the plan just outlined is as follows: The men are hired on an hourly rate, but are here paid by the clock. This rate may be a little lower than the rate in the first plan. The extra reward for extra efforts and results is similar to the one just mentioned, but the time saved is split with the management. That is, if the job assigned to a man is rated as requiring 8 hours and it is turned out in 6 hours the 2 hours saved is divided between the shop and the mechanic. In this way the mechanic receives pay for 7 hours and only puts in 6 hours. The shop keeps one hour's pay to offset possible idle time later on.

*Hourly Rate and Group Bonus.* The hourly rate and group bonus plan hires men on the regular hourly basis. Under this system the men receive their regular pay at the customary intervals, but at the end of the month the number of hours of labor sold and the number of hours punched on the clock are compared. Of course the hours of labor sold means the number of hours

*Workmen Should Have the Op  
ings in Proportion to Effi  
to More Prof*

## WHAT DOES

*When repair work is sold on  
in advance just what he is going  
order to make a profit he should  
cost him to turn out. Under flat  
tem of paying mechanics that will  
each job and at the same time  
more money. In this article Mr.  
tems of payment that may be*

that the jobs are rated to require on the flat rate basis.

If the shop as a whole has beaten the time schedule, one-half of the hours saved is divided among the mechanics and the other half is divided among the service salesmen, testers, shop foremen, superintendent and other non-productive employes of the service department.

This plan is of value only in the larger establishments. Where it can be used it creates a great spirit of team work, for no one gets the bonus unless the entire shop has beaten the schedule. It also eliminates careless work, as come-backs are charged against the shop. General efficiency is greatly increased, as the mechanics do everything in their power to help the slow man, but if he turns out to be a loafer they will see that he is discharged.

This is the way that this plan works out in practice. Suppose that the labor sold on the flat rate basis for the month would ordinarily require 2000 hours. In this case the work has been finished in 1800 hours. The shop has saved 200 hours. One half of this time at the average pay, which we may consider to be 75 cents an hour, would be \$75 to be divided among the mechanics. Another \$75 would be divided among the non-productive employes of the service department.

*Shifting Hourly Rate Plan.* The shifting hourly rate



# Under Flat Rate System

*portunity to Increase Their Earnings, Giving an Incentive  
itable Work*

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## LABOR COST?

*flat rate the shop operator knows to get for a particular job. In know what the job is going to rate it is possible to devise a system accurately control the cost of will enable the mechanic to earn Packer discusses the various systems used.*

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plan is one that was worked out by a number of Dodge Brothers dealers a few years ago and which has worked well in a number of shops of different size. Under this plan the mechanics are hired on what is considered to be a fair hourly rate for that particular locality. However, the hourly rate for the next month would be based on the hours worked and the labor sold the preceding month, figuring on 40 per cent of the labor sales as mechanic's pay.

For example, if the mechanic puts in 200 hours and is credited with labor sales amounting to \$300 he would receive \$120, this being 40 per cent of \$300. The monthly income divided by the hours worked would give the hourly rate, or  $\$120 \div 200 = 60$  cents, his pay per hour for the following month.

If in this following month the mechanic's labor sales amount to \$450 and he puts in 225 hours he would assure himself a 33 1/3 per cent pay increase for the next month.

That works out this way. Taking 40 per cent of \$450 gives us \$180 as the total income. Dividing this by 225 hours gives the rate, which in this case is 80 cents an hour.

**Piece Work System.** This is probably the simplest system of all to install and works out nicely for all

concerned where there is a fairly steady flow of service work. Slight modifications of this plan, guaranteeing minimum earnings, widen the field in which this system is worth while.

Briefly, this plan provides for the paying to the mechanic a certain percentage of the receipts from his labor sales. The exact percentage depends on living expenses, shop overhead, and on the amount of equipment that is required for the work. Where living is high, the tendency is to pay a higher rate; where the amount of equipment needed for the work is great a lower rate to the mechanic is fair. In general, we find that 35 per cent to 40 per cent is the average amount paid to the mechanics.

One of the modifications of this piece work plan is to pay each man a small amount daily to guarantee that he will show up and be on time. There is one concern in Chicago that pays its men \$1 a day to pay them for any time lost between jobs, particularly in the morning when they may have to wait for something to start on. This dollar is not charged against their piece work pay.

Another concern pays its men \$99 a month and charges this amount against the piece work earnings. However, this is a minimum wage guarantee and should the piece work run less than \$99 the shortage is not charged against the next month. Every 10 days the men receive a check for \$33 and at the end of the month they receive another check for the difference between what they have earned and the \$99. That is, if a man has earned \$200 that month on piece work and has already received \$99 he will receive a check for the balance of \$101.

This plan has worked out very well with a shop employing between 4 and 6 men. In fact, the men on this plan make an average of 67 per cent more money on this piece work plan than they made under the old hourly rate plan, and further, the labor cost is practically fixed.

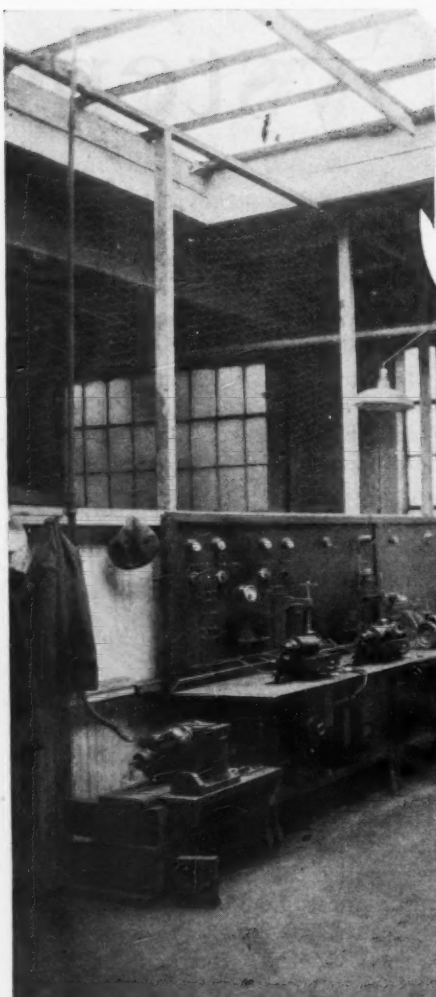
### *Application of These Plans*

In general, the intelligent application of these plans of payment for mechanics results in much larger shop profits. It also results in much higher pay for the mechanics.

There is where the danger comes in. The employer should not lose sight of the fact that *much of his success is directly due to the extra efforts of his men. These extra efforts that are bringing the extra profits are due to the incentive that he has offered to his men in the form of higher pay.*

After such a system has proved its worth and all connected with it are making more money than they ever did before and are giving better values to the customers the old temptation to cut the rate comes up.

Cutting the rate has been tried—with disastrous results. To cut the rate destroys the confidence of the men and without their confidence the organization that had sailed along smoothly is likely to head for the rocks.



# Installing The

*Shop Cannot Afford to Ignore  
Reap Its Share of*

By A. H.

*When electrical work has grown to the point where it necessitates a separate department, it should be handled with the most up to date equipment available*

**A** MAN operating a small repair shop was approached on the subject of doing electrical work. "Takin' up connectin' rods is my meat," he said. "I'll leave the electrical stuff to the other guys that want all the trouble."

Yes, he was just a small town mechanic, but there are many operators of service departments both large and small who have the same general idea, but what is behind it? How about the customer who has a knock in his engine and takes it to a man who does not know a spark knock from a bearing knock? How about the missing cylinder that may be afflicted with carburetor trouble, valve sticking or spark plug or coil trouble? Is it possible to do a good job and avoid the electrical trouble shooting part of the work?

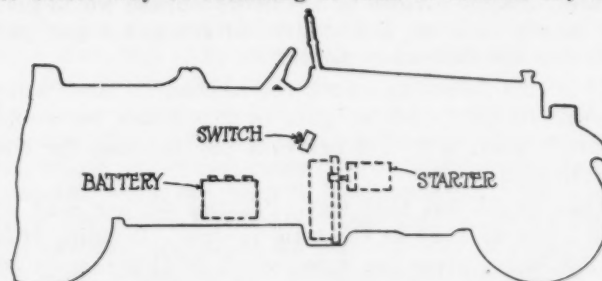
There is no way to avoid electrical work on the car. The only question is whether you decide to do just the mechanical part and turn the profit on the rest over to some other fellow. Few of us can afford to be philanthropists especially in the operation of a business.

Then there is the very practical consideration of the engine overhaul where it is essential to have the starting system in good condition in order to get the engine started when the job is done. The wise mechanic will remove the battery and put it on charge while doing the other work. He may also inspect the starter to see if it is in good condition so that his work will be easy at the conclusion of the job and so that the cus-

tomers will have no complaint regarding a stiff engine and a starter that will not turn it over.

Another angle is that of retaining the customer's good will. Many a man has taken his car to a general service station where mechanical work has been done which has proven of little value. Then he has been told to go to a carburetor service station. Here the story has been given that the ignition is at fault and when he gets to the ignition station perhaps another alibi is given with the result that he eventually patronizes a service station that can do the whole job and turn the car over to him ready to use.

The assets of a service station are of many sorts, but one of the most valuable as well as the most difficult to replace is customer good will and there is no better way of retaining it than to correct any dif-



*Is the starter, switch or battery at fault when the starter fails? Some electrical trouble shooting must be done even before the right unit can be sent out for repairs*



# Electrical Department

*Electrical Work If It Expects to Maintenance Profits*

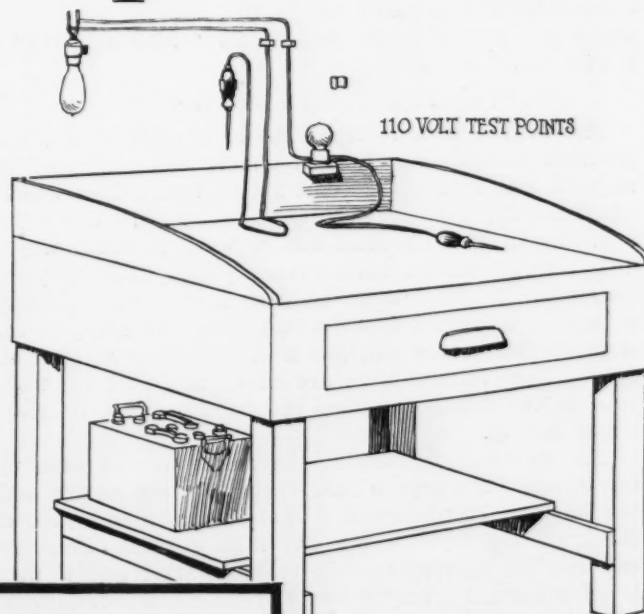
PACKER

difficulty he may be experiencing with his car, regardless of the nature of that difficulty.

Even suppose the service department policy is to send out electrical work. The next question is, "How can the work be sent out unless someone knows what work needs to be done?" One of the most vital features of electrical work is first checking on the car to see which unit is affected. Perhaps the starter does not work. The fault may not be in the starter at all. It may be the battery which is weak, the generator which does not keep the battery charged or the wiring which does not do its part in getting the current to flow to the starter.

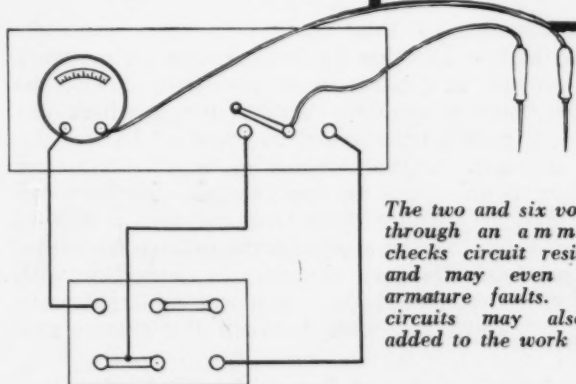
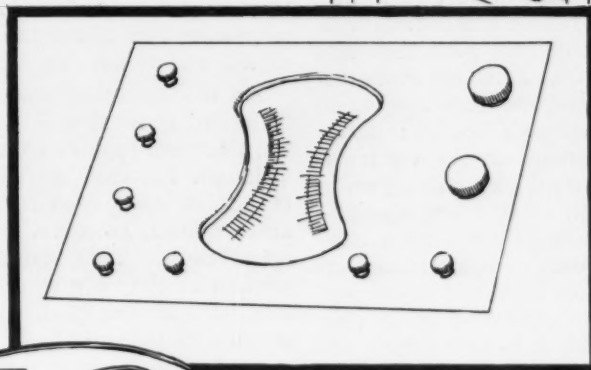
For this reason there must be a man in the service station who can shoot electrical trouble. Then why go this far in electrical work and then make another shop a present of the electrical job?

There are two ways of starting an electrical de-



*A simple bench will do for electrical repairs. It has sides and back to keep the small parts from rolling off and is provided with test points for locating grounds*

*One of the first things needed—a testing meter that will give any voltage or current reading to locate the breaks or grounds that the eye can not find*



*The two and six volt test through an ammeter checks circuit resistance and may even locate armature faults. These circuits may also be added to the work bench*

partment. In either case the territory should be studied to see what electrical shops are already on the field or what dealer organizations are already bidding for this business. Then the shop proprietor can get some idea of the amount of available business.

One way to start is to provide a place in the building for the electrical work, get it thoroughly equipped, have one or more men for this class of work, then advertise the electrical department locally and with the aid of regular customers and those who may be attracted by the advertising try to get enough business to support the new venture. A thorough shop executive who knows his territory, has his men trained and understands all phases of the business would probably proceed along these lines. This method, however, involves the hazard of not getting enough business for

some time to make the department pay the cost of its share of floor space and the equipment investment involved.

The other plan is to let the electrical department grow in a natural way and if this method is decided upon it is of prime importance to have a man who knows his electrical work and at the same time is willing to do any sort of work around the small shop. Few electrical experts can be picked up ready made. It is usually necessary that they develop in the shop and the man who will supplement his daily shop work with the study of a good electrical book will develop to the point where he can build up his own electrical department.

Electrical work in the shop can not be done without a foundation of electrical fundamentals. On the other hand electrical fundamentals which are not explained in such a way that they apply to the automobile and to the job of finding trouble are of little value. For this reason a book should be selected which applies the electrical principles to the every day work of finding shorts in the wiring, bad contacts at battery terminals, shorted ignition condensers and the other assorted defects which are simple and profitable to repair when you know how and a source of terrific annoyance to both the shop and customer when you are not sure just how to proceed.

As the mechanic develops himself he can locate trouble in the various units and at first may prefer

*(Continued on next page)*



# INSTALLING THE ELECTRICAL DEPARTMENT

(Continued from preceding page)

to send them out to be repaired. As he grows in confidence he will himself tackle the simpler jobs. At about this period in his advancement he will start to acquire some equipment.

## *The First Equipment Needed*

One of the first instruments to acquire is a good portable voltmeter and when one is being selected it may be better to get a combination instrument which will read any current in amperes as well as any voltage. Such an instrument can be used in many ways. The voltage feature makes it simple to locate a poor connection in the starter or generator circuit, to find a shorted battery cell, detect an open secondary in an ignition coil or see whether a condenser is shorted or not. These voltage tests are easily made by the man who is beginning to grasp the fundamentals of electrical testing.

The ammeter feature of the meter also is used to advantage. Perhaps a starter turns over slowly and the battery is suspected. The voltmeter will give a check on the battery but the high reading ammeter will tell the current flowing to the starter and if this is below normal it may indicate brushes and commutator badly burnt and gummed up which do not permit enough current to flow. The lower reading ammeter scale can also be used to check the generator charging rate when it is felt that the meter on the car may not be reliable.

At this stage in the advancement of our electrical department it may be well to send out units proved to be defective, but now and then to take one apart to see if its difficulty can be corrected by the shop electrician. Starting motors are usually simpler than generators to repair. Worn brushes and burnt commutators with occasionally a broken copper strap or lead between coils or connecting with a brush holder are easily detected, but even here a little testing works in well.

## *Need Testing Provisions*

This means that there should be a bench rigged up for the simple testing that the starting motor work will call for. Practically every bench has a 110 volt electric light over it and on the same circuit there can be hung a red test lamp with leads connected to test points which can be instantly used to see if the starter field or armature is grounded.

In addition to the 110 volt test points there can be test points which use battery current taken through an ammeter and a simple single pole double throw switch can be used in order that one or three cells of a six volt battery may be employed on the test. This gives test circuits of 2, 6 and 110 volts which will take care of low and high resistance circuits. In the construction of such an electrical work bench, sides and back should be used as illustrated so that small parts will not get lost. In some shops the top and sides of such a bench are metal covered, while a metal pan is used for the small parts such as brushes and screws.

As equipment is gradually being added there should be an increase in the amount of electrical work done and the volume of this business should be studied in connection with the growth of equipment, new testing apparatus being purchased as fast as shop profits warrant. As soon as much work is being done on starters and generators it will be found that a good growler

for armature testing is needed and this can be obtained and installed on the electrical work bench.

Some repairs on electrical equipment can be made without parts, but these are few. Nearly every job will need brushes. Some will be noisy and require bearings now and then a screw will be missing. This means that before the electrical department has progressed very far it will be necessary to stock a small quantity of the parts ordinarily used on the cars which are found in the greatest number in the vicinity of the shop. The automobile dealer will, of course, stock more heavily on the parts for the car he handles, with a smaller stock on other cars, if he does a general electrical repair business.

## *Cell Tester Is Valuable*

Another item used in testing and one which is profitable to have is a cell tester which comprises a sort of fork with a meter installed up near the handle. It is used to bridge one cell of the battery at a time in order to draw current from that cell and at the same time read its voltage. This little device is a good battery salesman, for it tells at a glance in terms the car owner can understand whether the battery is good or not and if not just which cell is the bad one.

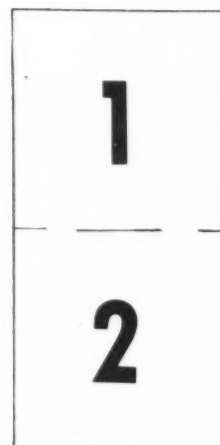
As the electrical business of the repair shop continues to grow it will be found advisable to segregate the electrical repairs from the general mechanical work, although the cars on which work is being done may be left in stalls used for other work. When the units are removed, however, they should go to the electrical department. This should be located adjacent to the portion of the shop where the cars are kept and should also be near the stock room so that needed parts may be quickly obtained.

A department of this kind should be completely equipped and in addition to the portable meter, work bench, growler and parts stock previously mentioned it should have a complete testing bench which can handle any generator, starter, magneto or battery ignition unit test. There should also be a lathe unless there is a suitable one in the general shop that can be used and even under these circumstances it will be found desirable to have a small lathe to turn commutators if much of this work is done. In connection with a lathe it is desirable to have a power undercutter to quickly cut down the mica between the commutator bars.

Other desirable items of shop equipment for the electrical department include a small drill press, grinder, arbor press, magnetizer for magneto magnets, bearing pullers and an assortment of small tools and special wrenches for adjusting third brushes and working on the special screws and nuts. Tools for this work can often be obtained from some of the larger makers of starting and lighting equipment. In battery work which is intimately associated with work on the electrical units it is quite desirable to have a high rate discharge tester which does a more thorough job than the simple cell tester. A hydrometer should be in every shop as a matter of course and a battery charging outfit of size suitable for the volume of work anticipated can be used to encourage battery charging business which will help bring other work to the electrical department.



Maps on this order too large to be entirely  
are filmed clockwise beginning in the upper  
right and top to bottom as many frames  
diagrams illustrate the method.





be entirely included in one exposure  
the upper left hand corner, left to  
frames as required. The following

<b>1</b>	<b>2</b>	<b>3</b>
<b>4</b>	<b>5</b>	<b>6</b>
<b>7</b>	<b>8</b>	<b>9</b>



The suggested prices shown in this chart have been published only after extensive investigation of factory, dealer, and specialized electrical service station prices. However, these prices should not be blindly followed. They form a good basis for charges and with a little careful study can be made to work in with local conditions.

# MOTOR AG

Suggested Prices

## OPERATIONS

### TROUBLE ANALYSIS

1. Testing electrical systems to locate units or wires affected. (Does not include unit repair or wire replacement.)

### GENERATOR OR MOTOR GENERATOR

2. Remove and replace, including test. (All necessary work such as retiming ignition or removing and replacing carburetor included.)
3. Repair generator after (2) or when brought in.
4. Turn and undercut commutator after (3). (Includes turning motor commutator on motor generator.)
5. Change one or more field coils after (3).
6. Adjust charging rate only, on car.
7. Sand commutator only, on car.
8. Adjusting driving chain.

### CUTOUT

9. Remove and replace.
10. Clean and adjust points.

### STARTER OR MOTOR GENERATOR

11. Remove and replace starter mechanical drive (Bendix, chain or gears and clutch.)
12. Remove starter, test and replace. (If included.)
13. Remove starter, test and replace. (If not included.)
14. Repair starter after (12 or 13) or when brought in.
15. Turn commutator after (14).

### STARTER SWITCH

16. Remove and replace.

### IGNITION

17. Retime ignition (battery system.)
18. Remove and replace distributor unit. (Retiming included.)
19. Resurface and adjust contacts (per pair)
20. Replace and adjust contacts (per pair)
21. Replace condenser (each).
22. Replace coil (time basis if screws must be drilled out).
23. Replace ballast resistance.
24. Replace distributor cap.

### SPARK PLUGS

25. Clean and adjust one.
26. Clean and adjust all.
27. Install one new plug.
28. Install all new plugs.

### WIRES AND CABLES

29. Replace one spark plug wire.
30. Replace all high tension wiring.
31. Replace any one starter cable.

### AMMETER AND SWITCH

32. Replace ammeter.
33. Replace ignition and lighting switch.

### LAMPS

34. Replace head lamp glass.
35. Replace tail lamp glass.
36. Replace one bulb.
37. Additional bulbs, each.
38. Focus head lamp bulbs and aim lamps. (Time basis if focusing device is rusty or stuck with paint.)

### FUSES

39. Replace one.
40. Replace all.

### HORN

41. Oil and tune horn.
42. Remove and replace horn.

### BATTERY

43. Remove battery, recharge and re-install in car.
44. Take hydrometer reading, add water, clean and tighten terminals, and tighten hold downs.
45. Test battery with high rate discharge tester. No charge for this when repairs are ordered by customer.
46. Replace rubber case.
47. Replace one cell cover.
48. For each additional cover add.
49. Reinsulate the battery.
50. Renew positive plates.

### CARBURETOR

51. Adjust in connection with ignition work.

\*Material included.

Operation No.	Anderson 41 & 60	Apperson 6 & 8	Auburn 6 & 8	Buick (Single Unit)	Buick (Two Unit)	Cadillac V-8	Cadillac 514	Casa	Chandler	Chevrolet "A.A."	Chrysler 50-60-70-90	Cole	Cummins V-4	Daniels	Davis	Diana	Operation No.	Dodge Bros. 12 V.	Dodge Bros. 6 V.	Duesenberg
1	0.75	0.75	0.75	0.75	0.75	1.00	1.00	0.75	0.75	0.75	0.75	0.75	1.00	1.00	0.75	0.75	1	0.75	0.75	0.75
2	1.50	1.50	1.50	2.50	1.50	3.50	1.50	1.50	0.75	1.75	1.50	1.50	1.50	10.00	1.50	1.50	2	2.00	1.50	2.50
3	4.25	4.25	4.25	6.00	4.25	6.25	4.25	4.25	3.20	4.25	4.25	4.25	5.25	5.75	4.25	4.25	3	5.50	4.00	5.25
4	1.00	1.00	1.00	1.25	1.00	1.25	1.00	1.00	1.00	0.75	1.00	1.00	1.00	1.00	1.00	1.00	4	1.00	0.80	1.00
5	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	5	2.00	3.50	1.00
6	0.50	0.50	0.50	0.65	0.50	0.65	0.50	0.50	0.50	0.50	0.50	0.50	0.50	1.00	0.50	0.50	6	0.50	0.50	0.75
7	0.50	0.50	0.50	0.75	0.50	0.65	0.50	0.50	0.50	0.50	0.50	0.50	0.50	1.00	0.50	0.50	7	0.50	0.50	0.50
8	0.50	0.50	0.50	0.75	0.50	0.65	0.50	0.50	0.50	0.50	0.50	0.50	0.50	1.00	0.50	0.50	8	1.00	0.50	0.50
9	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	9	3.00	0.75	1.00
10	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.40	0.35	0.50	0.50	0.50	0.75	0.50	0.50	10	3.00	0.75	0.50
11	2.25	2.25	2.25	3.00	2.25	4.00	2.25	2.25	2.25	1.50	2.25	2.25	2.25	2.50	2.25	2.25	11	2.50	1.50	3.50
12	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.25	1.75	2.25	2.25	2.25	2.25	2.50	2.25	2.25	12	3.00	2.00	3.50
13	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.75	1.50	1.50	1.50	1.50	1.50	1.50	1.50	13	2.00	2.00	3.50
14	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.25	3.75	3.75	3.75	3.75	5.00	3.75	3.75	14	5.50	4.00	5.00
15	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.60	0.75	0.75	0.75	0.75	0.75	0.75	0.75	15	0.75	0.75	0.75
16	1.00	1.00	1.00	0.75	0.75	0.75	0.75	1.00	0.75	1.50	1.00	0.75	1.25	2.00	1.00	1.00	16	3.00	0.75	2.00
17	1.00	1.00	1.00	1.20	1.00	1.20	1.50	1.00	0.75	1.00	1.00	1.00	2.00	2.00	1.00	0.75	17	0.75	0.75	1.50
18	1.40	1.40	1.40	1.50	1.40	2.50	2.00	1.40	1.00	1.00	2.00	2.00	2.00	2.00	1.40	1.00	18	1.50	1.50	2.50
19	0.75	0.75	0.75	1.00	0.75	1.00	1.00	0.75	0.75	0.75	1.00	0.75	1.00	1.00	0.75	0.75	19	0.75	0.75	1.00
20	1.00	1.00	1.00	1.00	1.00	1.30	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	20	1.00	1.00	1.00
21	0.85	0.85	0.85	0.60	0.85	0.60	1.00	0.85	0.75	0.50	0.85	0.85	1.00	1.00	0.85	0.50	21	0.75	0.75	1.00
22	1.00	1.00	1.00	1.00	1.00	0.60	1.00	1.00	0.60	0.75	1.00	1.00	1.00	1.00	1.00	1.00	22	1.00	1.00	1.00
23	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	23	0.50	0.50	0.50
24	0.75	0.75	0.75	0.75	0.75	0.75	1.00	0.75	0.75	0.50	0.75	1.00	1.50	1.50	0.75	0.75	24	0.40	0.40	1.00
25	0.15	0.15	0.15	0.30	0.25	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	25	0.15	0.15	0.15
26	0.75	1.25	1.25	1.50	1.00	1.25	1.25	0.75	0.75	0.50	0.75	1.00	1.00	1.00	0.75	1.00	26	0.50	0.50	0.75
27	0.10	0.10	0.10	0.25	0.25	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	27	0.10	0.10	0.10
28	0.50	0.50	0.50	0.75	0.75	0.60	0.60	0.50	0.50	0.30	0.50	0.75	0.75	0.75	0.75	0.75	28	0.40	0.40	0.65
29	0.75	0.75	0.75	0.75	0.60	0.75	2.00	0.75	0.40	0.40	0.60	0.75	1.50	1.50	0.50	1.50	29	0.25	0.25	1.00
30	2.25	2.50	3.00	2.00	1.80	4.50	4.00	2.40	2.00	0.75	1.60	2.65	4.00	4.00	1.00	4.00	30	0.50	0.50	1.50
31	1.00	0.75	1.00	1.05	0.85	1.10	1.00	0.95	0.75	0.80	0.85	1.25	1.25	1.00	0.75	1.00	31	0.75	0.75	0.75
32	0.75	0.75	0.75	0.75	1.00	0.60	0.60	1.50	1.50	0.60	0.75	1.00	0.75	0.75	0.75	0.75	32	1.00	1.00	1.00
33	1.00	1.00	1.00	1.00	1.65	1.00	1.00	1.50	0.90	1.00	1.00	2.00	2.00	2.00	1.00	1.00	33	1.00	1.00	1.50
34	0.85	0.75	0.50	0.50	0.75	0.60	0.75	0.65	0.80	0.50	0.75	0.75	1.00	1.00	0.80	0.65	34	0.50	0.50	0.75
35	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	35	0.40	0.40	0.40
36	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	36	0.25	0.25	0.25
37	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	37	0.15	0.15	0.15
38	1.40	1.75	1.40	1.50	1.25	1.25	1.50	1.25	1.40	0.90	1.50	1.50	1.50	1.50	1.50	1.25	38	1.25	1.25	2.00
39	0.50	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	39	0.10	0.10	0.10
40	0.50	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	40	0.10	0.10	0.10
41	0.75	0.75	0.75	1.80	0.75	0.75	0.75	1.40	0.75	0.75	1.50	0.75	0.75	0.75	0.75	0.75	41	0.75	0.75	0.75
42	0.75	0.75	0.75	0.80	0.50	0.75	0.75	0.60	0.70	1.00	1.50	1.10	0.75	0.75	0.75	0.50	42	0.50	0.50	0.75
43	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	43	1.00	1.00	1.00
44	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	44	0.40	0.40	0.40
45	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	45	0.75	0.75	0.75
46	3.25	3.25	3.25	3.25	3.25	5.25	5.25	5.25	3.25	3.00	5.25	5.25	5.25	5.25	3.25	3.25	46	5.25	3.25	5.25
47	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	47	0.50	0.50	0.50
48	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	48	0.40	0.40	0.40
49	7.00	7.00	7.00	7.00	7.00	8.25	8.25	7.50	7.00	6.00	7.00	7.50	7.50	8.25	7.00	7.00	49	7.50	7.00	7.50
50	10.75	10.75	10.75	10.75	10.75	12.75	12.75	11.75	10.75	9.75	10.75	11.75	11.75	12.75	10.75	10.75	50	12.75	10.75	11.75
51	0.70	0.70	0.70	0.60	0.70	0.50	1.25	0.75	0.50	0.50	0.25	1.50	0.75	0.75	0.75	0.75	51	0.75	0.75	1.25

Miscellaneous repair operations not covered in the flat rate chart:

Rem  
when



*Suggested Prices for 51 Automotive Electrical Maintenance and Repair O*

Remove and replace Delco circuit breaker on Delco-equipped cars where circuit breaker is not a unit with the switch.....	\$2.00
--	--------

**Synchronize ignition points on contacts .....**

# WATER CHART

Air Operations

Supplement to MOTOR AGE, May 5, 1927  
Vol. LI, No. 18

Compiled by C. Edward Packer  
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Operation No.	Peerless	Pierce Arrow 36-50	Pontiac	Reo	Rickenbacker	Rosmar	Star 4 & 6	Stearns Knight 6 & 8	Studebaker	Stutz AA	Vette	Westcott 44 & 60	Willlys Knight 4 & 6	Willis Ste. Claire 6	Willis Ste. Claire 8	Operation No.
1	1.00	1.00	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	1
2	2.50	2.25	1.75	1.50	3.00	3.00	2.00	2.00	1.50	1.50	1.50	1.50	1.00	3.00	6.50	2
3	4.25	5.75	4.50	2.50	3.20	4.00	4.00	5.25	4.25	4.25	4.25	4.25	4.00	4.50	8.00	3
4	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	4
5	1.00	1.20	1.00	3.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	5
6	0.50	0.75	0.50	0.50	0.50	0.50	0.35	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	6
7	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	7
8	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.50	0.50	0.75	0.75	0.75	0.75	0.75	0.75	8
9	0.75	0.75	0.50	1.00	0.50	0.50	0.50	1.00	0.75	0.75	0.75	0.75	0.50	1.50	0.75	9
10	0.75	0.75	0.50	1.00	0.50	0.50	0.50	1.00	0.75	0.75	0.75	0.75	0.50	1.50	0.75	10
11	3.50	2.25	1.50	1.50	1.50	1.50	1.50	1.00	2.25	2.25	2.25	2.25	1.50	1.50	1.50	11
12	3.50	3.25	1.75	1.50	1.50	1.50	1.50	1.00	2.25	2.25	2.25	2.25	1.50	1.50	1.50	12
13	2.75	1.50	1.50	1.50	1.50	1.50	1.50	1.00	1.50	1.50	1.50	1.50	1.50	1.50	1.50	13
14	5.50	5.00	3.50	3.50	3.25	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	14
15	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	15
16	1.50	0.75	1.50	1.00	0.40	1.00	1.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	16
17	1.50	1.20	1.00	1.50	1.30	0.75	0.75	1.00	0.90	2.25	0.90	0.90	0.75	1.00	1.50	17
18	3.50	1.95	1.00	2.00	3.00	1.00	1.00	2.00	1.40	3.00	1.40	1.40	1.00	1.50	3.50	18
19	1.00	1.00	0.75	1.00	1.00	0.75	0.75	1.00	1.00	1.25	1.00	1.00	0.75	1.00	1.00	19
20	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.25	1.00	1.00	1.00	1.00	1.00	20
21	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.75	21
22	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	1.00	0.75	0.75	0.75	0.75	0.75	22
23	0.50	0.75	0.35	0.60	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.25	0.25	0.50	23
24	1.00	1.35	0.75	0.75	0.75	0.50	0.50	1.00	0.75	1.50	0.75	0.75	0.60	1.00	1.25	24
25	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.65	25
26	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.50	26
27	0.75	0.50	0.75	0.75	0.75	0.50	0.50	0.50	0.50	0.75	0.75	0.75	0.75	0.75	0.75	27
28	0.75	1.00	1.25	0.75	0.75	0.15	0.75	0.35	0.35	1.25	0.50	0.80	0.80	0.75	3.00	28
29	2.75	2.25	2.40	2.00	2.75	1.00	1.50	1.50	3.00	3.00	2.40	1.50	2.75	6.00	6.00	29
30	0.80	0.75	0.75	0.75	0.75	0.75	0.75	1.50	2.00	0.65	1.00	1.00	1.50	1.50	1.50	30
31	2.00	1.25	1.00	1.00	3.00	0.75	0.50	0.75	0.75	0.75	1.25	1.50	1.25	2.00	2.00	31
32	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	32
33	0.75	0.60	0.75	0.65	0.65	0.45	0.55	0.55	1.20	0.65	0.60	0.65	0.65	0.65	0.65	33
34	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	34
35	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	35
36	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	36
37	1.50	1.50	1.00	1.50	0.85	1.50	1.10	1.50	1.25	2.00	1.25	1.25	1.25	1.50	1.50	37
38	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	38
39	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	39
40	1.00	0.75	0.75	0.75	0.75	0.75	0.75	1.25	0.85	0.85	1.25	0.75	0.75	1.50	1.50	40
41	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.65	0.85	0.85	1.25	0.75	0.75	1.00	1.00	41
42	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	42
43	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	43
44	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	44
45	5.25	5.25	3.25	3.25	5.25	3.25	3.00	5.25	3.25	5.25	3.25	3.25	5.25	5.25	5.25	45
46	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	46
47	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	47
48	7.50	7.50	7.00	7.00	7.00	7.00	6.00	7.50	7.00	8.25	7.00	7.00	8.25	7.50	7.50	48
49	11.75	11.75	10.75	10.75	12.75	10.75	9.75	11.75	10.75	12.75	10.75	10.75	12.75	11.75	11.75	49
50	1.00	0.75	0.75	0.75	0.75	0.50	0.50	0.70	0.70	0.65	0.65	0.70	0.75	2.00	2.00	50

tion points on say car having two pairs of interrupter  
\$2.00

Westinghouse voltage regulator on McFarlan—remove, overhaul, test  
with generator and replace on car \$4.00





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# New Flat Rate Book

## Covers 80 Car Models

Contains Flat Rates, Material Prices,  
Parts Price Lists and  
Repair Data

By WM. K. TOBOLDT



Stout binding and easily found prices feature new flat rate book

**T**WO HUNDRED AND FIFTY-FOUR flat rate operations are applied to 80 different chassis models in the Rapid Flat Rate Price List which has just been compiled and published by the Chilton Class Journal Company. Besides the labor prices, material prices are given for the various operations and in addition an abridged factory parts list and repair data, such as valve and ignition timing, valve tappet clearance, interrupter and spark plug gaps and brake lining lengths are listed for each chassis model. This compilation which is pocket size, gives flat rate repair prices on more cars than any other manual on the market at the present time and is the only one to give material prices for each operation, factory parts lists and repair data.

The general arrangement and layout of the book is designed so that the prices, both labor and material, can be obtained in the shortest possible time. One-half of the 254 operations are always before the user and it is this feature that makes it possible to obtain the prices in less time than is required by other manuals.

As a test the book was given to a man not particularly familiar with flat rate manuals and in 3 $\frac{3}{4}$  minutes he obtained labor and material prices on nine operations which included work on all the major chassis units. A man who was familiar with the Rapid Flat Rate Price list obtained the prices in 1 $\frac{1}{2}$  minutes.

One of the criticisms of most flat rate manuals has been the overlapping of operations, making it impossible to add several prices together without charging the customer twice for doing a certain portion of the work. Two months were spent by the writer and associates in selecting the operations contained in the manual and the operations were chosen to meet the needs of present day servicing. Included in the list is a variety of complete overhaul operations making it

possible for the service man to quote prices instantly without adding a lot of prices. In cases where the operations do not fill the needs of the car to be overhauled, the scope of these complete overhaul operations may be increased or decreased by the addition or subtraction of any of the related minor or bench operations, without any over-lapping of work.

For instance, a price has been quoted on the renewal of piston rings. Then after the connecting rods are out it is found that the pins are badly worn. All that is necessary is to obtain the price from the table for renewing the pins when the rods are out. This added to the price for renewing the rings, which was a complete operation, is the total charge to the customer.

This system of minor non-overlapping operations is used throughout the Rapid Flat Rate Price List. By means of this system any minor or bench operation can be added or subtracted from a corresponding major operation so as to cover more or less work without canceling a previously sold operation.

Another criticism of flat rates is that a certain job may be easy on one car while on another car of the same make and model, the parts will be rusted and more time will be required to complete the work. A price that would be correct for one car would not be correct for the other. Cases of this sort are taken care of in this compilation. For instance if the brake linkage is frozen, the operation which reads "Service brakes free up and adjust" is used rather than the operation for adjusting only. Or the operation for the complete

(Continued on page 34)

Rapid Flat Rate Price List	
<b>O-Engine Combinations</b> O 1. R & R and grind all cylinder pins and rings. Install new pistons, valves and seats. Take up main and chain or gear. Renew timing and clean air lines. Overhaul all pumps. Clean, paint and tune engine. O 2. Grind valves and tune engine. Install overhead pins and rings. Take up main and red bearings. O 3. Remove cylinder blocks and install factory re-ground blocks, exchange basis. Fit new pistons, pins, rings, take up main and red bearings, grind valves and tune engine. O 4. Remove cylinder blocks and install factory re-ground blocks, exchange basis. Fit new pistons, pins, rings, take up main and red bearings, grind valves and tune engine.	
<b>Q-Piston Assemblies</b> Q 11. Overhaul piston, pin and ring assembly, install one by section after Q 2. Q 12. Piston, pin and ring assembly, install one by section after Q 2. Q 13. Piston, pin and ring assembly, install one by section after Q 2. Q 14. Piston, pin and ring assembly, install one by section after Q 2. Q 15. Piston, pin and ring assembly, install one by section after Q 2. Q 16. Piston, pin and ring assembly, install one by section after Q 2. Q 17. Piston, pin and ring assembly, install one by section after Q 2. Q 18. Piston, pin and ring assembly, install one by section after Q 2. Q 19. Piston, pin and ring assembly, install one by section after Q 2. Q 20. Piston, pin and ring assembly, install one by section after Q 2. Q 21. Piston, pin and ring assembly, install one by section after Q 2. Q 22. Piston, pin and ring assembly, install one by section after Q 2. Q 23. Piston, pin and ring assembly, install one by section after Q 2. Q 24. Piston, pin and ring assembly, install one by section after Q 2. Q 25. Piston, pin and ring assembly, install one by section after Q 2. Q 26. Piston, pin and ring assembly, install one by section after Q 2. Q 27. Piston, pin and ring assembly, install one by section after Q 2. Q 28. Piston, pin and ring assembly, install one by section after Q 2. Q 29. Piston, pin and ring assembly, install one by section after Q 2. Q 30. Piston, pin and ring assembly, install one by section after Q 2. Q 31. Piston, pin and ring assembly, install one by section after Q 2. Q 32. Piston, pin and ring assembly, install one by section after Q 2. Q 33. Piston, pin and ring assembly, install one by section after Q 2. Q 34. Piston, pin and ring assembly, install one by section after Q 2. Q 35. Piston, pin and ring assembly, install one by section after Q 2. Q 36. Piston, pin and ring assembly, install one by section after Q 2. Q 37. Piston, pin and ring assembly, install one by section after Q 2. Q 38. Piston, pin and ring assembly, install one by section after Q 2. Q 39. Piston, pin and ring assembly, install one by section after Q 2. Q 40. Piston, pin and ring assembly, install one by section after Q 2. Q 41. Piston, pin and ring assembly, install one by section after Q 2. Q 42. Piston, pin and ring assembly, install one by section after Q 2. Q 43. Piston, pin and ring assembly, install one by section after Q 2. Q 44. Piston, pin and ring assembly, install one by section after Q 2. Q 45. Piston, pin and ring assembly, install one by section after Q 2. Q 46. Piston, pin and ring assembly, install one by section after Q 2. Q 47. Piston, pin and ring assembly, install one by section after Q 2. Q 48. Piston, pin and ring assembly, install one by section after Q 2. Q 49. Piston, pin and ring assembly, install one by section after Q 2. Q 50. Piston, pin and ring assembly, install one by section after Q 2. Q 51. Piston, pin and ring assembly, install one by section after Q 2. Q 52. Piston, pin and ring assembly, install one by section after Q 2. Q 53. Piston, pin and ring assembly, install one by section after Q 2. Q 54. Piston, pin and ring assembly, install one by section after Q 2. Q 55. Piston, pin and ring assembly, install one by section after Q 2. Q 56. Piston, pin and ring assembly, install one by section after Q 2. Q 57. Piston, pin and ring assembly, install one by section after Q 2. Q 58. Piston, pin and ring assembly, install one by section after Q 2. Q 59. Piston, pin and ring assembly, install one by section after Q 2. Q 60. Piston, pin and ring assembly, install one by section after Q 2. Q 61. Piston, pin and ring assembly, install one by section after Q 2. Q 62. Piston, pin and ring assembly, install one by section after Q 2. Q 63. Piston, pin and ring assembly, install one by section after Q 2. Q 64. Piston, pin and ring assembly, install one by section after Q 2. Q 65. Piston, pin and ring assembly, install one by section after Q 2. Q 66. Piston, pin and ring assembly, install one by section after Q 2. Q 67. Piston, pin and ring assembly, install one by section after Q 2. Q 68. Piston, pin and ring assembly, install one by section after Q 2. Q 69. Piston, pin and ring assembly, install one by section after Q 2. Q 70. Piston, pin and ring assembly, install one by section after Q 2. Q 71. Piston, pin and ring assembly, install one by section after Q 2. Q 72. Piston, pin and ring assembly, install one by section after Q 2. Q 73. Piston, pin and ring assembly, install one by section after Q 2. Q 74. Piston, pin and ring assembly, install one by section after Q 2. Q 75. Piston, pin and ring assembly, install one by section after Q 2. Q 76. Piston, pin and ring assembly, install one by section after Q 2. Q 77. Piston, pin and ring assembly, install one by section after Q 2. Q 78. Piston, pin and ring assembly, install one by section after Q 2. Q 79. Piston, pin and ring assembly, install one by section after Q 2. Q 80. Piston, pin and ring assembly, install one by section after Q 2.	
<b>G-Rod Bearings</b> G 1. R & R and grind all cylinder pins and rings. Install new pistons, valves and seats. Take up main and chain or gear. Renew timing and clean air lines. Overhaul all pumps. Clean, paint and tune engine. G 2. Grind valves and tune engine. Install overhead pins and rings. Take up main and red bearings. G 3. Remove cylinder blocks and install factory re-ground blocks, exchange basis. Fit new pistons, pins, rings, take up main and red bearings, grind valves and tune engine. G 4. Remove cylinder blocks and install factory re-ground blocks, exchange basis. Fit new pistons, pins, rings, take up main and red bearings, grind valves and tune engine.	
<b>P-Engine Miscellaneous</b> P 1. Engine assembly R & R. P 2. Engine assembly R & R. P 3. Engine assembly R & R. P 4. Engine assembly R & R. P 5. Engine assembly R & R. P 6. Engine assembly R & R. P 7. Engine assembly R & R. P 8. Engine assembly R & R. P 9. Engine assembly R & R. P 10. Engine assembly R & R. P 11. Engine assembly R & R. P 12. Engine assembly R & R. P 13. Engine assembly R & R. P 14. Engine assembly R & R. P 15. Engine assembly R & R. P 16. Engine assembly R & R. P 17. Engine assembly R & R. P 18. Engine assembly R & R. P 19. Engine assembly R & R. P 20. Engine assembly R & R. P 21. Engine assembly R & R. P 22. Engine assembly R & R. P 23. Engine assembly R & R. P 24. Engine assembly R & R. P 25. Engine assembly R & R. P 26. Engine assembly R & R. P 27. Engine assembly R & R. P 28. Engine assembly R & R. P 29. Engine assembly R & R. P 30. Engine assembly R & R. P 31. Engine assembly R & R. P 32. Engine assembly R & R. P 33. Engine assembly R & R. P 34. Engine assembly R & R. P 35. Engine assembly R & R. P 36. Engine assembly R & R. P 37. Engine assembly R & R. P 38. Engine assembly R & R. P 39. Engine assembly R & R. P 40. Engine assembly R & R. P 41. Engine assembly R & R. P 42. Engine assembly R & R. P 43. Engine assembly R & R. P 44. Engine assembly R & R. P 45. Engine assembly R & R. P 46. Engine assembly R & R. P 47. Engine assembly R & R. P 48. Engine assembly R & R. P 49. Engine assembly R & R. P 50. Engine assembly R & R. P 51. Engine assembly R & R. P 52. Engine assembly R & R. P 53. Engine assembly R & R. P 54. Engine assembly R & R. P 55. Engine assembly R & R. P 56. Engine assembly R & R. P 57. Engine assembly R & R. P 58. Engine assembly R & R. P 59. Engine assembly R & R. P 60. Engine assembly R & R. P 61. Engine assembly R & R. P 62. Engine assembly R & R. P 63. Engine assembly R & R. P 64. Engine assembly R & R. P 65. Engine assembly R & R. P 66. Engine assembly R & R. P 67. Engine assembly R & R. P 68. Engine assembly R & R. P 69. Engine assembly R & R. P 70. Engine assembly R & R. P 71. Engine assembly R & R. P 72. Engine assembly R & R. P 73. Engine assembly R & R. P 74. Engine assembly R & R. P 75. Engine assembly R & R. P 76. Engine assembly R & R. P 77. Engine assembly R & R. P 78. Engine assembly R & R. P 79. Engine assembly R & R. P 80. Engine assembly R & R.	
<b>Additional Operations</b> A 10-R & R and overhaul vacuum tank. A 11-Adjust oil pump gear clearance. A 12-Overhaul vibration damper including. A 13-Overhaul vibration damper including. A 14-Install cylinder side cover gasket. A 15-6 & 8 speedometer band. A 16-6 & 8 speedometer drive cable. A 17-Tighten universal joint housing to.	
<b>Repair Data</b> Rod assemblies are removed from the bottom. Valve timing. Inlet opens top C. Exhaust closes top C. Ignition timing. With spark lever set at 1/2 advanced position. Tappet clearance. Inlet. .005 in. Exhaust. .005 in. adjustment made with engine cold. Brake lining. Rear wheel total length-46 in. x 2 in. x 3/16 in. Front wheel total length-47 in. x 1 1/2 in. x 3/16 in.	
<b>HUPMOBILE SIX</b>	

Sample pages from Rapid Flat Rate Price List

# HOW TO INSTALL FLAT RATE SYSTEM

(Continued from page 25)

worked under that plan for almost a year. After that time he will not consider any other system.

The point here made is that the shop executive must explain the system in detail and then see it through. To back down is destructive to shop morale.

The service men should understand that all repairs are to be sold at a flat price to the customer. The man or men who meet customers must be sure that all orders are priced, and then signed by the customer. This will eliminate arguments when the car is called for. This is one big advantage of Flat Rates.

Those who meet the customers should be supplied with booklets showing labor prices, or have ready access to charts showing the charges for different operations. The system used should be carefully studied so that everyone interprets it the same way.

## *Should Have Standard Procedure*

With the aid of the shop foreman, standard procedure sheets should be prepared. That is, a list should be made up, at least for the repair work most frequently done, showing the order in which each operation is handled.

With the co-operation of the tool room man, tool kits for the more common operations should be prepared. By that is meant, kits for relining brakes, grinding valves, tuning engine, adjusting clutch, etc. This will save time by assuring the mechanic that he has all needed tools, and by keeping these tools from being buried under tools that are not required for the job on hand. Such a kit for valve service, for example would include the following:

Set of socket wrenches for removing and replacing head.

Valve lifter.

Spring compressor and spring holders.

Screwdriver and pliers.

Tappet wrenches.

Set of valve refacers for facing and narrowing seats.  
1/4 in. electric drill.

Wire brush for cleaning carbon (run by electric drill).

Valve guide cleaner (run by electric drill).

Wire brush for cleaning up valves (run by electric drill).

In addition to the kit there should be a valve refacer which should be kept in the tool or stock room. The entire kit should be kept in a steel tray or box and should be given out on a regular tool check.

## *Advantages of Flat Rate to the Mechanics*

All of the advantages in the article on "How to Pay Mechanics on the Flat Rate Plan" should be explained to the men. They should also be asked for their opinions in order that the one explaining the system can satisfy them by answering the questions that will naturally come up.

All of the facts should be placed before the men. When it is known that an investigation made in New York, Philadelphia, Detroit, Kansas City and Los Angeles, showed that flat rates brought the mechanics an average increase of 67 per cent in their earnings they will probably be anxious to try it.

## *What Must Be Done in the Shop*

With the introduction of Flat Rates in the shop it will be necessary to clean up, light up and properly equip for greatest profits.

Under Flat Rates the mechanics are vitally interested in maximum output, so they will be irritated by dark and dirty surroundings, as the best work cannot be done under these conditions. Also, any avoidable delay at the tool room will be annoying to them.

The proprietor should co-operate with the men to the limit in all of their desires for conditions that will speed up and improve their work.

On the old hourly rate of selling service, equipment that speeded up the work was of less value than under the flat rate plan as it merely reduced the time and so reduced the earnings. On the flat rate method of selling service anything that increases the number of jobs that the shop can turn out *multiplies profits*.

## New Flat Rate Book Covers 80 Car Models

(Continued from page 33)

overhaul of the brake operating mechanism may be used. Similar operations are provided on all of the various units.

An idea of the arrangement of the book can best be obtained from a study of the accompanying illustrations. Briefly, it is a three fold book of such size that it is easily carried in a coat pocket. The 254 operations cover two of the folds or covers, with one inserted sheet, while the flat rate and parts price lists are bound on the upper edge of the third fold, which is on the right hand side when the book is open for use. The abridged parts list and flat rate prices with the additional operations and repair data pertaining to each chassis model are on facing pages, so that all the data for each chassis model is before the user, without turning any pages.

As an aid to the user of the Rapid Flat Rate Price List all major operations are printed in bold face type

so that they are easily distinguishable from the minor or bench operations, which are set in light face type. This same feature is carried out on the price list pages.

To use the book the operations covering the work to be done are found in the list which covers the first two covers of the book. Each operation has an identifying number. This number is found on the price list page, devoted to the car in question and besides this number are found two prices, the first being the labor charge to do the required work and the second is the cost of the materials needed. At the bottom of the page the repair data, previously mentioned and additional operations which apply only to that car, are listed.

The Rapid Flat Rate Price List is priced at \$2.00 when sold in conjunction with subscriptions to dealer publications of the Chilton Class Journal Company. It is durably bound in black fabrikoid with gold lettering on the cover.



# Accurate Inventory Helps Make Profit from Parts

*Western Dealer Devises System That Keeps Stock Complete at Lowest Cost*

By A. NIX

**T**HE automobile business has grown fast and in many ways equipment—especially for office use—that was not especially designed for use by dealers in handling a line of merchandise where such a multiplicity of items must be carried and recorded, is still one of the contributing causes to inefficiency of the individual dealer establishment.

In the parts and accessory end of the business the Eldridge Buick Company of Seattle and Spokane, Washington, has designed for its own use, and is making available to its associated dealers in Washington, Alaska and northern Idaho, a perpetual inventory system that cuts the time necessary for keeping inventory records up-to-date in half and makes possible the records being at all times only a few hours behind the stock room as an indicator of the condition of the stock.

The automatic inventory consists of a large wheel, easily rotated, around the rim of which are filed the inventory cards, the wheel being of cast aluminum. It takes the place of the usual drawer files and the stock room clerk can sit at his desk and, by rotating the wheel, reach every card in the filing system. The large inventory system in the company's parts building in Seattle consists of several tiers of wheels and posting is done by a bank bookkeeping machine especially built for the purpose, but the system as modified for use in Spokane and by smaller dealers, consists of one wheel and the posting is done by hand or by typewriter.

The inventory system was developed by the Eldridge organization and J. W. Wheat, parts manager in Spokane, and R. H. Wolverton, parts manager in Seattle, are credited with working out the system on a practical basis.

## *Simple Card Is Used*

A special stock card is provided for the Eldridge Buick Company's dealers, a modification of the card it uses in its own business where, of course, both wholesale and retail business is done and together with the larger stocks handled information along a different line is desired.

The dealers' card provides for recording, in one corner the bin and section number and the maximum and minimum stocks to be carried of the particular item. The number of the part, its name, list and retail price, models of cars for which it is used and other information is carried on top of the card.

Information as to orders, receipt of goods and the number sold and balance of stock on hand is posted from day to day from the daily sales slips.


The Eldridge Buick Company parts auditor checks the inventory cards for dead stock and orders new stock as required from the inventory cards, with assurance that the record is accurate and gives a complete "picture" of the bins.



*Office and bin room of parts department of Eldridge Buick Co., Spokane, Wash., showing rotary filing case for expediting stock keeping*

That a 50 per cent saving in office labor is resulting from the adoption of this inventory system is shown by the records of the Seattle and Spokane offices of the Eldridge Buick company where the system is used on a parts and accessory business totaling \$1,000,000 annually and where posting on inventory cards is never more than half a day behind the sales in the department.

## A Business Building Sticker

Date _____	
Your car has been oiled and greased this date as follows:	
Grease Cups _____	Transmission _____
Oil Cups _____	Differential _____
Crank Case _____	Springs _____
We used _____ quarts oil and _____ lbs. grease. Your speedometer registered _____ miles. Service again at _____ miles	
 BARKER AUTO SERVICE © INCORPORATED	

*A form such as this is used by many service stations to enable the car owner to know when his car should be lubricated next. Printed as a sticker this form can be attached to the dash panel or the lower part of the windshield. It should help to keep the customer coming back to the place where he has received satisfactory service. One of the surest ways for the service station to make profit is by building up a clientele of owners who have their cars lubricated and adjusted regularly. This sort of service also is the most economical investment for the owner.*



# Methods That Bring Profitable Business

## Saves Corner Space for Used Cars

**I**N designing its new sales and service establishment and having available an attractive corner lot, Miller Auto Co., Dodge Brothers dealer at Sacramento, Cal., left the space immediately on the corner unoccupied by the building and used it for an outdoor used car display. The space was paved and attractive canopies were erected to protect cars and customers from the weather. This arrangement has proved especially attractive to used car buyers.



Valuable corner space is devoted to used car display by Miller Auto Co., Sacramento, Cal.

## If Your Shop's Worth While Let 'Em See It

**W**HILE practically every dealer recognizes the value of display in promoting the sale of merchandise, the importance of applying this principle to the sale of service work is frequently overlooked.

Display meets a two-fold sales requirement—it acquaints the public with the goods carried by a merchant, and through the medium of appeal and serviceability suggests their purchase.

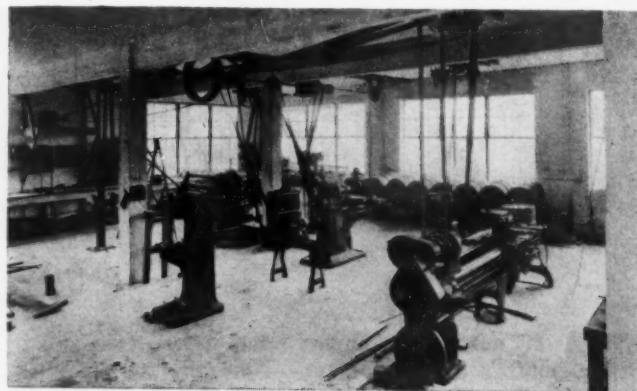
The location of battery repair departments in dealers' shops furnishes an illustration of the value of display as applied to the sale of service work.

Recently, while investigating the cause of the wide variance in the volume of battery business obtained by dealers, it was observed that the dealer whose battery repair department was maintained in a cleanly manner and located in an easily accessible part of the shop, where it could be seen by everyone, obtained a much larger volume of battery business than the dealer whose repair department was located in some obscure corner in the rear of the shop.

Study your shop layout; endeavor to arrange each department so that it is displayed to the best advantage. The sales value of display is of particular importance to the automobile dealer, as it affects every department of his business.—*Ford service bulletin.*

## A Shop Is No Better Than Its Equipment

**A** SHOP is no better than the equipment which it has. That is one reason for the fast growth of the business of Roth Brothers, independent garage operators of San Antonio, Texas. The accompanying picture shows a view of this concern's modern machine shop and the ideal arrangement of the equipment found therein. Among the important units found here are Heald cylinder grinder, Brown & Sharpe milling machine, two Monarch lathes, Le Blonde external grinders; drill press, connecting rod aligners and complete set of reamers.



Machine shop in garage of Roth Brothers, San Antonio, Tex.

## Keeping Confidence of the Customer

**A** PROFITABLE maintenance business can be built up only by creating and keeping the good will and confidence of the customers. The service department of Gambill Motor Co., Chicago, follows up every maintenance customer. A letter from the service superintendent goes to the customer a few days after his car has been in the shop emphasizing the purpose of the company to give complete satisfaction and asking the customer to report on the government postal card enclosed whether or not he was satisfied. The customer also is asked to make any suggestion he cares to and to give the name of any friend who might be interested in buying a new car.

Did you receive courteous attention?

Was the work satisfactory?

Was everything done that you asked for?

If not, please specify.

Suggestions

Name

Home Address

Home Tel. No.

Here is the name of a friend who should buy a Humboldt.

Name

Address

CHIEF, ...

Dear Sir:

When you bring your Humboldt to central service for work of any kind whether it is just the regular monthly club member inspection, oiling and greasing or just a wash and polish I am sincerely interested in everything being done to your entire satisfaction.

We are making every effort here at Central Humboldt Service to give the best service to every Humboldt owner, to give service that is courteous - to do work efficiently and to have everything done that is asked for and the car ready when promised.

You can help me if you will fill in the enclosed Government post card telling us if the work was satisfactory that we did for you and if you have any suggestions for improvement we will appreciate your telling us frankly, for in this way we will give Humboldt owners service that satisfies.

We realize that satisfied owners are boosters and that boosters are the most effective advertisers and the most productive salesmen in our organization.

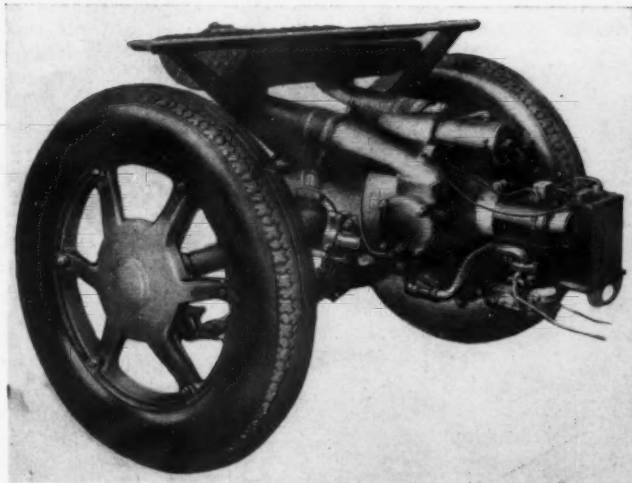
Our service motto is "Every owner a booster". Would appreciate it very much if you will mail the post card to me today.

Very truly yours,  
GAMBILL MOTOR COMPANY INC.,  
*H. J. Walden*  
Service Superintendent.

LJW:8

Letter and postal card sent to every service customer by Gambill Motor Co.

# New Pack-Age-Car Uses Opposed Two-Cylinder Engine Mounted *Over* Rear Wheels



The unit power plant of the Pak-Age-Car is mounted directly over the rear wheels



The new Pak-Age-Car delivery truck

A DEALER organization is being formed to distribute the Pak-Age-Car manufactured by the Pak-Age-Car Corp., Chicago, improved models of which have just been introduced.

The Pak-Age-Car is a light delivery truck designed by Lee Oldfield and incorporates a number of novel features. The car has no chassis in the ordinary meaning of the term.

In appearance, the vehicle resembles an underslung wagon. High doors, extending from floor to roof, permit easy entrance from either side. There are no built-in seats.

Entire control is vested in dual levers, one beside each door; a steering

wheel in the center is adjusted to the standing posture. The car may be operated from a standing position on either side. An automatic clutch permits shifting of gears without use of foot levers. The shifting lever, when pulled back, operates the brake. The car is accelerated by turning the handle, the system used on motorcycles.

The enclosed body is supported by a structural truss that extends along the roof from front to rear. It has no axles. The front supporting springs, mounted crosswise, one above the other, terminate in ball and socket connections which replace the usual king-pin construction.

The engine and all of its accessories, clutch, transmission and final worm drive are all assembled in a unit with the rear springs and wheels. In case of emergency, this entire unit can be replaced on the road, without disturbing the load, in fifteen minutes.

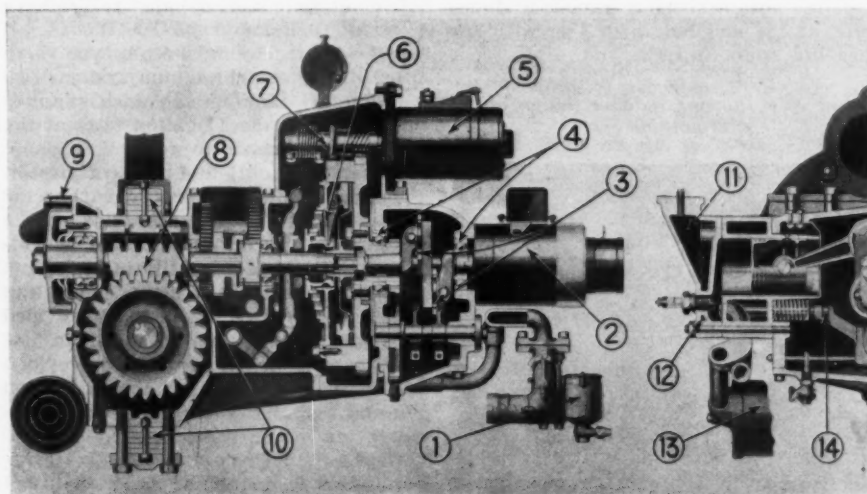
The twin-cylinder, horizontally opposed engine used in the truck develops about ten brake horsepower and is capable of propelling the truck at the rate of 15 miles an hour, when carrying 3000 pounds, about twice the speed of a horse at trot. Its maximum speed, unloaded, is 18 miles an hour. The truck alone weighs 1800 pounds.

Because the Pak-Age-Car is designed for frequent stop, short haul deliveries, the engine is seldom shut off. It is, however, equipped with a self-starter. The gasoline consumption is rated at one quart an hour of running, or from 40 to 60 miles to the gallon straight away, and the oil consumption at approximately one quart a week. In the water cooling system, a hopper is employed, operating on the same principle as numerous small stationary engines, which eliminate radiators, fans and pumps.

The truck with body completely equipped sells for \$950 f.o.b. Chicago.

## Stable-Arc Welding Rod

A NEW "dipped" steel welding rod known as the Stable-Arc is the product of the Lincoln Electric Co., Cleveland, O. It is claimed that this rod permits of much higher current than has been used heretofore with the resulting greater speed. The Stable-Arc welding rod is obtainable in standard 50 pound bundles in lengths of 14 inches. It can be obtained in longer lengths if desired.



Sectional view of the power plant of the Pak-Age-Car. (1) Zenith carburetor, (2) generator, (3) roller bearing connecting rods, (4) ball bearing crankshaft, (5) Auto-Lite starter, (6) 9 in. Borg & Beck clutch, (7) Bendix drive, (8) worm drive, (9) service brake, (10) power plant completely suspended on 2 springs, (11) extra large water spaces built with expansion room to prevent breaking, (12) anti-freeze unnecessary; small water spaces at bottom allow progressive freezing, (13) extra large muffler, (14) Boyle flat-seated valves



# Reo Announces the Wolverine Six

*New Car by Well-Known  
Manufacturer Has Con-  
tinental Engine with  
Seven Main Bearings  
and Is Equipped  
with Internal Ex-  
panding Hydraulic 4-Wheel  
Brakes*

By A. F. DENHAM

REO has brought out the Wolverine as a companion car to the "Flying Cloud." Built in a single body style, a two-door five passenger brougham, the Wolverine Six will be marketed through the regular Reo organization. It has a wheelbase of 114 in. and is priced at \$1195, representing the lowest priced six cylinder closed car ever marketed by the Reo Motor Car Company.

With present production schedules on commercial cars and buses in addition to the large production of Flying Cloud models, taking up practically the entire capacity of the Reo plants, and in order not to delay the appearance of the Wolverine, a radical departure from previous Reo practices has been inaugurated in that stock units for the new car are being purchased outside. A special built Continental engine, Borg and Beck clutch, Warner Gear transmission, Salisbury axles and Hayes-Ionia bodies make up the major units of the Wolverine.

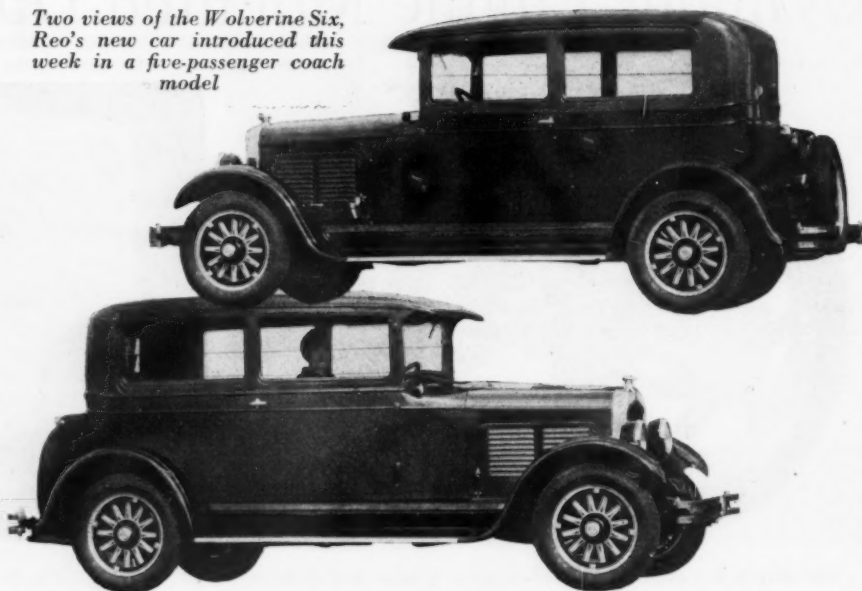
The writer had occasion to ride in one of the new models which had been subjected to practically 10,000 miles of hard experimental driving, including a trip to the Pacific Coast and back, and while nothing had been done to the car, according to Reo officials, except a few minor adjustments, performance was excellent. A high speed was easily maintained, acceleration from five to 25 miles an hour took roughly somewhat less than 20 seconds, and no well defined periods of vibration could be noted anywhere in its speed range.

## Special Continental Engine

Although the six cylinder Continental "L" head engine embodies a number of features which are of Reo design, it is fundamentally of the same type as is used in two other cars which have recently been placed on the market. Bore and stroke are 3¼ by 4 inches, representing an N. A. C. C. rating of 25.2 h.p., and a piston displacement of 199.1 cubic inches.

Seven bronze-backed babbltt lined

*Two views of the Wolverine Six,  
Reo's new car introduced this  
week in a five-passenger coach  
model*



main bearings are provided on the 2½ in. crankshaft, while the camshaft is of the four bearing type and driven by a 1¼ in. chain, adjusted manually by means of the movable generator support flange. Minimum lengths of main bearings are 1⅞ in. for the front, 1⅞ in. for center and rear, and 1⅞ in. for the other bearings. The four camshaft bearings decrease from front to rear in ⅛ inch steps, the front bearing having a diameter of 2⅞ in. and the rear 1⅞. Lengths are 1⅞ and one inch for the front and rear bearings, respectively, intermediate bearings having a length of ⅞. Pistons are of the four ring Nelson alloy type, with a piston pin diameter of 55/64 in., the pin being full-floating and 2⅞ in. long. Connecting rods are of drop forged steel, 8⅞ in. from center to center, the lower bearing having a diameter of 1⅞ and length of 1⅞, with the bearing spun into the rod.

*Front view showing radiator design of the  
Wolverine Six*



Crankcase and cylinder block are cast integrally of grey iron, a pressed steel oil pan being used. Cast integrally with the detachable cylinder head is the housing containing a thermostat regulating the water circulation. A circulating water riser is also embodied to eliminate any chance of steam pockets forming at the rear of the head. Water circulation is by means of a ball bearing centrifugal pump, a ¾ in. vee belt driven fan and a Harrison ribbon cellular radiator with a nickel or chromium plated pressed steel radiator shell completing the cooling system, which has a capacity of 3½ gallons.

## Chrome Nickel Valves

Intake valves are of chrome nickel steel, 1⅞ inches in diameter, while the silicon chrome steel exhaust valves have a nominal diameter of 1⅞ inches, all being actuated by mushroom type valve lifters. A Stewart vacuum system with a two-quart tank on the dash supplies gasoline from the 17-gallon tank at the rear of the chassis to a 1¼ inch Shebler vertical outlet type carburetor. Primary air intake for the carburetor follows previous Reo practice, being taken from the crankcase, thus providing a crankcase ventilating system. Full pressure feed to main, connecting rod, and camshaft bearing is provided through a gear pump located in the crankcase, pressure also being provided to the front end timing chain. Piston pin and cylinder walls are splash lubricated.

Engine suspension is of the four-point rubber cushioned type, identical with that used in the Flying Cloud. North-East 6-volt electrical units with a Willard 86 ampere hour storage battery are fitted. The model LB-120215 generator is of the unit type, and the model SBH-3604 starter motor is fitted

*(Continued on next page)*



## REO ANNOUNCES NEW WOLVERINE SIX

(Continued from preceding page)

with an Eclipse Bendix starter engagement. Semi-automatic spark advance is provided in connection with the TU-10820 distributor, 22 degrees of the total 42 degrees advance being automatic. Distributor drive is by means of a vertical shaft through the center of the block, the unit being centrally located on top of the block. An unusual feature of the ignition system is that the manual advance control is located on the dash where it is operated similarly to the choke control. It is rarely necessary to use this as the timing of the engine is based on a full manual advance, the distributor points opening with the flywheel one inch before top dead center. Spark plugs are  $\frac{7}{8}$  inch standard. Included in the lighting system are Tilt-Ray double filament bulb headlights, 3 cp. cowl lights and a rear traffic signal in addition to dome, dash and tail lights, the latter two being wired in series.

### Borg & Beck Clutch

A Borg & Beck 10QL single plate clutch and a Warner Gear model AS23-T64J three-speed selective gear transmission are built in unit with the engine. Gear reductions are 3.114 in low, 1.69 to one in second and 3.78 to one in reverse with direct drive in high. A transmission brake with an eight inch diameter drum, two inches wide is provided and connected to the emergency brake hand lever. Two Universal Products metal type universal joints are fitted to the one piece tubular propeller shaft.

Both front and rear axles are of Salisbury make. The model M1649E rear axle is of the spiral bevel conventional type, semi-floating and fitted with

gears giving a rear axle reduction of 4.45 to one. Annular bearings carry the pinion shaft. The front axle is of I-beam construction with Reverse Elliott ends. Lockheed hydraulic service brakes are fitted on all four wheels. These are of the internal expanding type, drums being 12 inches in diameter, with the lining  $1\frac{1}{8}$  inches wide and  $\frac{3}{8}$  inch thick. The supply system is similar to that used on the Flying Cloud, a reserve tank being located adjacent to the brake pedal providing automatic replenishing of the system.

Steering is effected through a Ross model PA cam and lever steering gear. The steering wheel is 17 inches in diameter and the column shaft has been changed slightly to permit of the fitting of a Hershey coincidental lock. As 80 degrees of steering arm travel are obtained with 2.71 turns of the wheel a turning radius of but 19 feet has been obtained.

Both torque reaction and propulsion are taken by the semi-elliptic springs. These are unusually long, front springs being 37 by 2 and rear 55 by 2 inches, metal shackled. Although provision is made on the car for fitting of Lovejoy shock absorbers these are not fitted as standard.

Pressed  $\frac{1}{2}$  in. channel steel, six inches deep is used for the members of the frame, which has a kick-up over the rear axle and 2 inch wide flanges. Tubular cross members are provided at either end with four pressed steel cross-members amidships. The usual type of tie-rod is also provided below the frame back of the flywheel to absorb twisting stresses in the frame.

Eighteen inch wood wheels, mounted

on tapered roller bearings with 28x5.25 balloon tires, on 18x4 inch split rims, are standard equipment, while Zerk pressure gun fittings are used at chassis points requiring lubrication.

While the body on the Wolverine from the cowl back closely resembles that of the two-door Flying Cloud brougham, the fluted radiator shell and hood and two sets of horizontal louvers give the new car a distinctive appearance. Bodies, as on the Flying Cloud, are of composite construction. Upholstery is in striped mouse gray velour and exterior finish in duo-tone lacquer with colored window reveals and single belt molding. A rather neat instrument panel contains the speedometer, ammeter, oil pressure gage and dash gasoline gage, the instruments being lighted indirectly. The dash gasoline gage is of the dual electric type, an additional dial being mounted on the tank at the rear.

### Equipment

Spark and choke controls are mounted to the right of the panel on the instrument board, while the lighting switch is mounted on the steering wheel, and the ignition switch is incorporated in the Hershey coincidental switch on the steering column. Standard equipment also includes bumpers front and rear, automatic vacuum type windshield wiper, rear vision mirror, locking type tire carrier, black enameled, nickel trimmed steel trunk, cowl ventilator, one piece swinging windshield, cowl lights, door lock, dome light and rear traffic signal. Shipping weight is in the neighborhood of 2,800 lbs. complete.

## New Velie Roadster at \$1165

THE Velie Motors Corporation of Moline, Ill., has added a new body type to its Standard Six line, to be known as the Standard Six Roadster.

Like the other Standard Six models, the new roadster has Lockheed hydraulic four-wheel brakes, heat indicator on dash, 182 $\frac{3}{4}$  inches of spring equipment and radiator capacity of 4 $\frac{3}{4}$  gallons. Mounted on a 112-inch wheelbase, the car is powered by the Velie-built 3 $\frac{1}{2}$  by 4 $\frac{1}{4}$  inch valve-in-head engine.

The new Standard Six roadster is low-hung and compact in appearance and seats four people, the deck concealing a rumble seat. Windshield is of one piece, adjustable type, held in place by strong nickel finished upright arms. Cowl ventilator is operated from beneath the dash. Automatic windshield wiper, rear vision mirror and balloon cord tires are standard equipment. Other equipment includes front bumpers, rear bumperettes, stop light, spare tire, tube and cover and radiator emblem.

Upholstery of seat, seat back, rum-

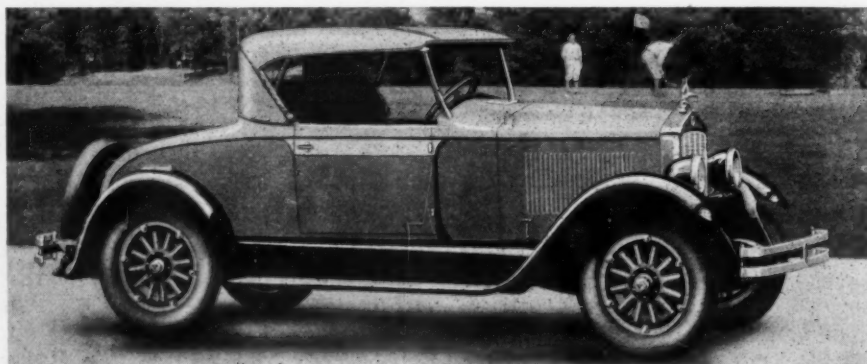
ble seat and door panels is of pebble-grained blue or green leather. There is a package compartment behind the seat back. Khaki covered top folds back or can be removed entirely. The beautiful walnut finished instrument board contains four-unit instrument panel indirectly lighted.

Finish is Phoebe green below the belt, Pewee green on top of cowl, hood and rear deck, with a Papaw yellow door panel and Raven black moldings with Wren yellow striping.

The new Standard Six roadster lists at \$1165 f.o.b. Moline.

### One Key for All Locks

IN the latest Cadillac and LaSalle models one key operates the shift lock, extra tire lock, tool box lock, luggage carrier lock and the door locks. Thus the motorist who has the one key necessary to get his car out of the garage has access to whatever may be locked up in any of the car's compartments.



New Velie Standard Six roadster

# Many Changes Made in Dodge Brothers Engine

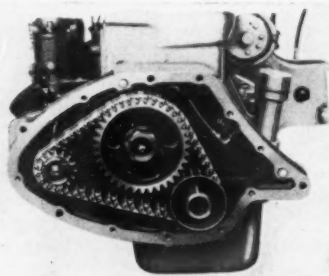
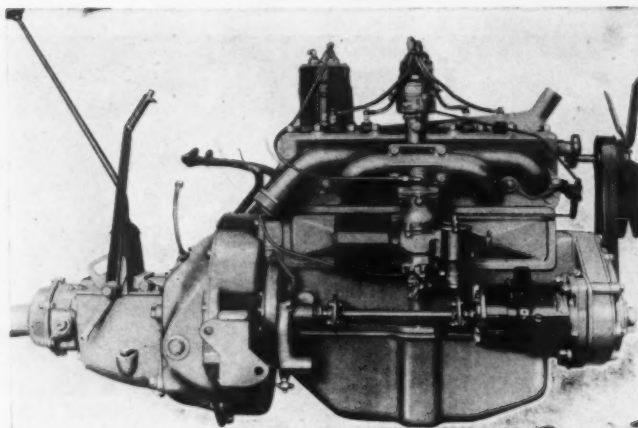
*Four-Cylinder Power  
Plant Has Standard  
Gearshift Transmission and Chain  
Front End Drive*

By  
A. F. DENHAM

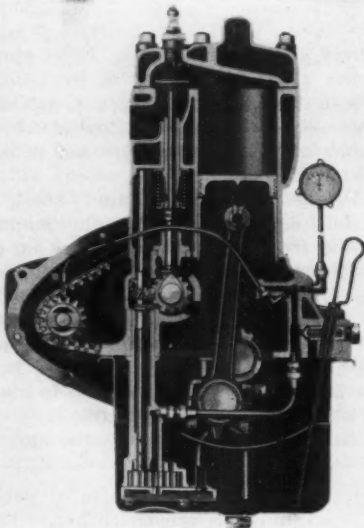
FOLLOWING on the adoption of a single plate clutch, redesigned engine mounts and universal joints, announced recently by Dodge Brothers, this company has made further changes in design to simplify production and increase performance and serviceability. A new engine and standard gearshift transmission are features of the latest announcement. While the major dimensions of the previous Dodge Brothers four cylinder engine are retained, changes have been made in the front end drive, which is now of the chain type, an "Automotive" fan has been adopted as standard and accessories drives and units have been changed in order to obtain better accessibility and provide greater simplicity in production.

The new transmission is conventional in design. Somewhat heavier than formerly, the 1 $\frac{3}{4}$  in. transmission shaft, which is now of the six-splined type is carried on two ball bearings, while a Hyatt roller bearing is used for the pilot bearing. The countershaft is hollow, gears being carried by means of Hyatt roller bearings on the idle countershaft proper. Reverse and low speed gears are integral with the shaft while the intermediate and countershaft drive gears are pressed on and fixed with Woodruff keys. A bronze bushing is used for the idler gear mounting.

*Side view of the new Dodge Four engine assembly showing standard gearshift transmission and seamless tubing propeller shaft*



*The timing chain now used for the front end drive on the Dodge Four reduces noise. It is manually adjustable*



*Front sectional view of the Dodge four engine showing new oil pump location and enclosed oil lines*

Speedometer drive is from a spiral gear forming the retaining collar of the rear transmission bearing.

Of conventional design, the front end drive on the new engine consists of a center guide Morse chain with manual take up, effected by means of an adjustment at the front end of the generator providing for swinging the entire generator. The timing chain cover is provided with two integral drilled lugs which serve as front engine supports, being bolted on to the front frame cross member. An inspection hole is provided in the cover.

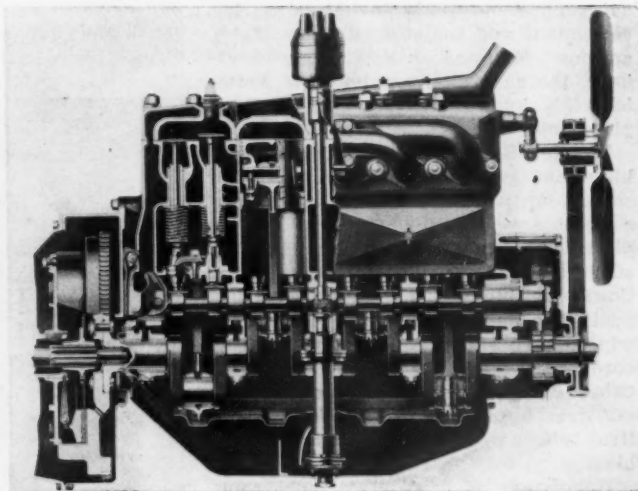
The "Automotive" fan differs chiefly from the former unit used by Dodge Brothers in that it is provided with an internal gear pump forcing oil from a supply carried in the fan hub to the fan bearings through the spindle arm.

In order to reduce the number of oil and water packings on the water pump, the location of this unit has been changed. It is now mounted on the right side of the cylinder block near the rear end. Drive is by means of a long shaft from the generator with two fabric universal joints. This reduces the number of packings to one external water retaining packing. Better accessibility is also obtained by this change. The generator is now at the front end and driven by the timing chain at 1.2 times crankshaft speed, which of course is also the speed for the water pump.

Changes in location have also been made in the distributor and oil pump. The distributor head which was formerly mounted on top of the water pump drive gear housing is now driven by a vertical shaft at the right side and center of the cylinder block, this shaft

*(Continued on page 62)*

*Sectional view of the new Dodge Brothers four cylinder engine showing new location of accessories drives and front end changes. Note new type of fan*





# Oilometer is New Automatic Lubricating System

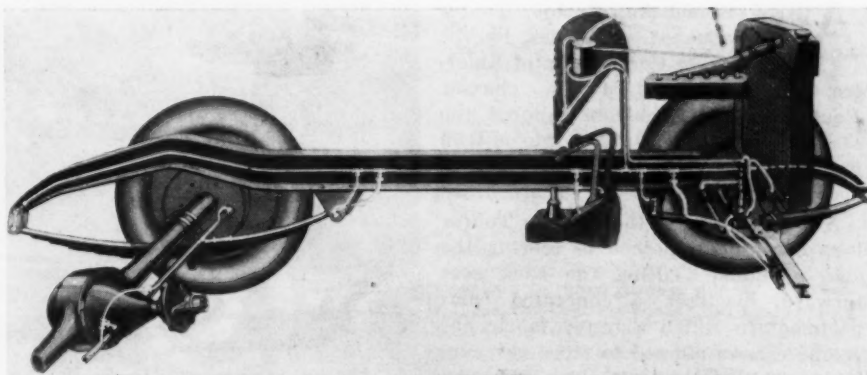
**T**HE Stanley Automotive Products Corporation, 1841 Broadway, New York, has announced an automatic and continuous chassis lubricating system under the name of the Oilometer.

In this system oil is fed continuously from a main tank through wicking contained in copper tubes to all bearing surfaces. The rate of oil flow is proportioned to the needs of the bearing, and by means of a connection with the water circulating system of the engine a certain amount of pressure is applied to the oil.

The development of the system was under the direction of Don C. McCord, who is vice-president. John J. O'Brien is president. Mr. McCord was formerly president of the Standard Motor Car Company and was with Apperson for three years. Both men are very well known in the automotive field. The device is the invention of E. C. Stanley, formerly with the Auto Car Company.

Manufacture is now under way, both for standard equipment and replacement.

The system consists of a water jacketed tank secured to the forward side of the dash, and holds enough oil for 2,000 miles. The jacket is connected to the cooling system of the vehicle by two one-quarter inch copper tubes, one running from the upper part of the tank to the upper part of the



*Oilometer chassis lubricating system which feeds oil to all bearings when car is operated*

cooling system, and the other from the lower part of the tank to the lower part of the cooling system.

When the engine is started the heating of the water in the cooling system causes a pressure to be exerted on the oil tank which forces the oil along the wicking to the bearings. In addition to the pressure from the tank the oil is also fed through the wick to the wearing parts by capillary attraction.

A three-sixteenth inch pipe is led through the top of the tank to within one-half inch of the bottom. The pipe is carried down to either longitudinal frame member and there branches—one lead runs forward, and the other to the rear. The only other connection on

the tank is a filling plug on top.

From the longitudinal main feed line as many branches are taken off as are required to lubricate the desired number of bearings.

Oil is fed directly to the rear-spring shackle bolts, rear-spring bolts, front spring bolts, and front spring shackle bolts, and by means of flexible tubing to rear-wheel bearings, brake and connections, steering knuckles, front axle tie rod, king pins, and other points.

On stopping the engine the circulating water cools, thereby creating a partial vacuum in the tank. The vacuum sucks the oil back from the ends of the wicking and prevents any drip when the car is standing still.

## Custom Coupe Is New Erskine Model

**T**HE Erskine custom coupe is a new model announced by the Studebaker Corporation. This car has a rumble seat, giving capacity for four passengers.

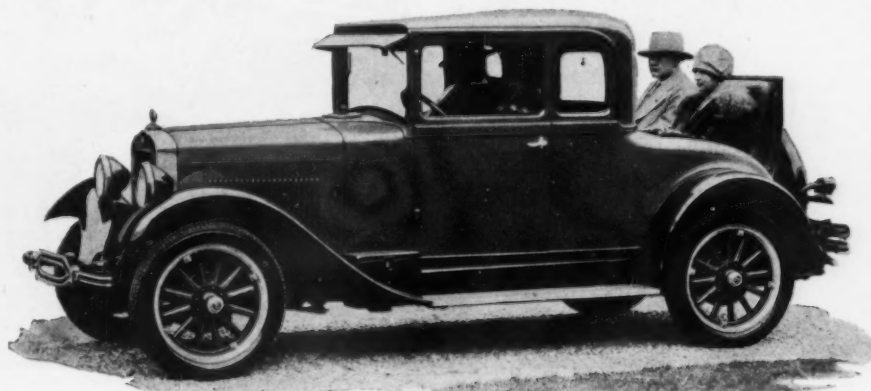
The body was designed by Dietrich and is constructed to provide ample room for all passengers.

Interior upholstery is broadcloth, embellished with broadlace trim. All hardware is of silver finish.

Convenient compartments are provided at both ends of the instrument board in which gloves, cigarettes, or other motoring accessories may be carried. The instrument board carries a hydrostatic gasoline gage in addition to the usual speedometer, ammeter, and oil pressure gage. Another feature is

the coincidental lock, conveniently located on the steering column, which locks both steering and ignition, and whose key also locks the doors and rear deck.

Equipment includes bumpers, front and rear, and a silvered motometer on the radiator. The French visor is tilted at a smart military angle. A cowl ventilator, windshield automatic cleaner, and rear vision mirror are included in equipment.



*The new Erskine coupe for four passengers*

## Parts Distributors Elect

SAN FRANCISCO, May 2.—W. A. Maxwell, of Stockton, has been elected president of the Replacement Parts Distributors' Association of Northern California. Representatives of virtually every replacement parts distributing firm in northern California are members of the new association.

Parts jobbers of the state of Washington also have formed an association, with D. C. Thaanum, of the Colyear Motor Sales Company as president; W. L. Strahl, vice-president; A. D. Hoge, secretary, and E. P. Marilley, treasurer.



# Studebaker Adds Custom Tourer on Standard Six Chassis

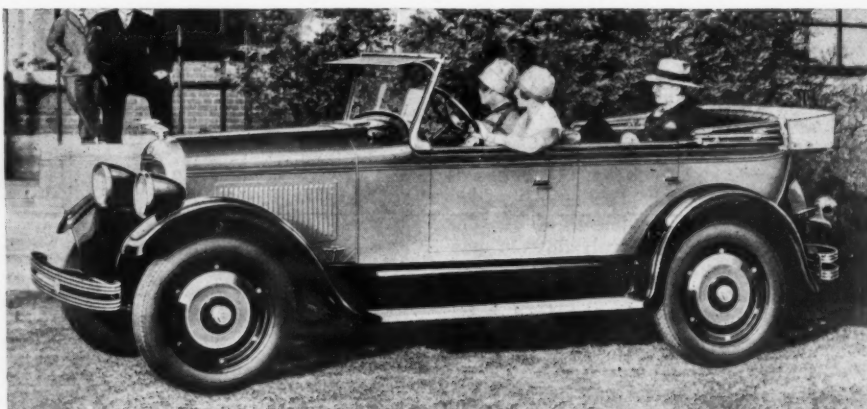
A NEW Studebaker Custom Tourer is announced this week by the Studebaker Corporation of America, on the Standard Six chassis. Equipped with a custom tailored top of Carrco duck that folds into a trim flat boot, the new Tourer typifies the sport motif in open cars.

A new feature of the Custom Tourer is a convenient method of storing the side curtains. Tilting the back seat forward, discloses a concealed compartment in which a heavy fabric envelope can be slipped to store the curtains. This method not only keeps the curtains far more accessible than under the seat, but also affords them protection from dust and dirt.

The finish is a deep rich brown above the full length belt, contrasting with a lighter color below.

The color motif is carried out in the duotone grey and brown Spanish grain leather upholstery and duotone grey and brown hood materials.

Nickeled supports for the one-piece windshield and nickeled top hangers, with natural wood finish for the top bows and steering wheel add a smart touch. The special material from which the top is made will stand the repeated



Studebaker five-passenger custom tourer listing at \$1165

folding that takes place when the top is lowered without showing wrinkles or wear.

Standard equipment on the tourer includes: bumpers, front and rear; disk wheels, balloon tires, four-wheel brakes, two-beam headlights controlled from the steering wheel, rear view mirror, automatic windshield cleaner, coincidental lock to steering and ignition, rear traffic signal lamp. Instruments artistically arranged in an oval under glass on the instrument board and indirectly illuminated are, engine thermometer,

hydrostatic gasoline gage, speedometer, ammeter and oil pressure gage.

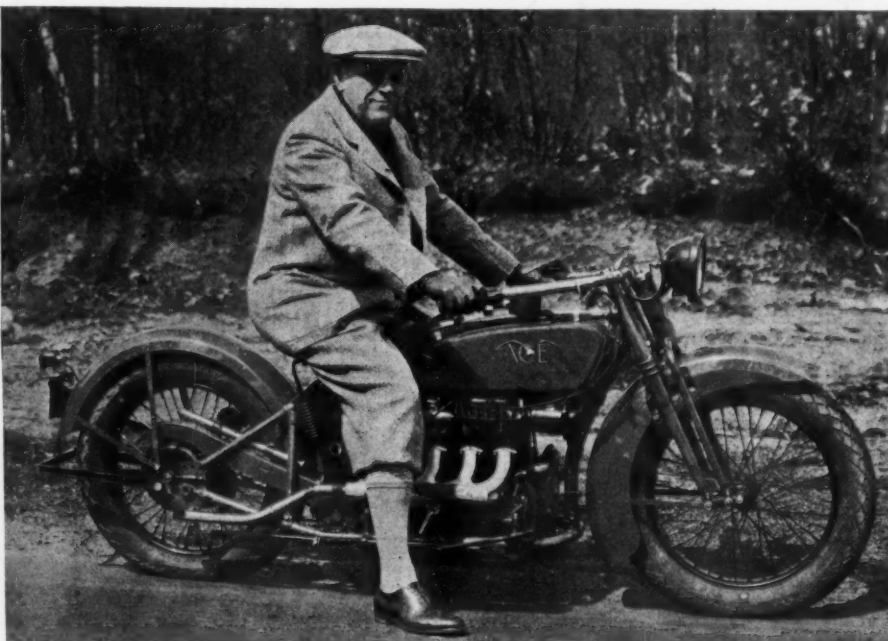
The price is \$1165, f.o.b. factory.

The Studebaker Custom Tourer can also be obtained for seven passengers. It is identical with the five-passenger tourer except in color and seating capacity. It is finished in two shades of blue, a deep blue below and a lighter blue above, separated by a light grey pin stripe. The folding auxiliary seats are covered with blue Spanish grain leather. The Custom Tourer for seven lists at \$1245 f.o.b. factory.

## Ace Motorcycle Manufactured by Indian

ON April 12 the first new model 4-cylinder Ace motorcycle was turned out by the Indian Motorcycle Co., at their Springfield, Mass., plant. Last January the Indian Motorcycle Co. bought all the tools, merchandise, equipment, manufacturing and patent rights from the Michigan Motors Co. of Detroit.

This Indian built Ace has many improvements and refinements developed in the Indian plant. These include a new force feed oil system, all lines and pump being enclosed in the crankcase. An oil pressure gage is mounted on the engine in plain view of the rider. The front fork has been improved to provide more comfortable riding and to have greater strength by changes in the rocker arms. Both the main and recoil springs have been redesigned. The saddle has been lowered so that it is now only 27½ in. from the ground. Even so, the saddle action has remained the same—having 4½ in. of free travel. Braking ability has been increased 100 per cent by changes in the lining and brake lever. An improved inlet manifold assures steady operation even at low speeds.



Louis E. Bauer on the first Ace motorcycle to leave the Indian plant at Springfield, Mass.

# The READERS CLEARING HOUSE

Questions And  
Answers



On Dealers  
Problems

## Check the Heater Valve Position

We have in our shop a 1925 Nash special six that has been driven 5500 miles. This car is in fine condition except for a little carburetor trouble. After releasing the foot from the accelerator the engine seems to jerk until the car has run about 100 ft. Then it begins to idle perfectly. The engine has good compression which is equal in all cylinders. Have tried adjusting the carburetor but it does not seem to help.—H. E. James, R.F.D. No. 1, Newport, Ark.

WE are showing an illustration which will make it simple to check up on the carburetor adjustment and also on the adjustment of the heat control. We would suggest your turning the fuel needle valve which is under the carburetor to the right until the needle just barely seats. Then back it off about one turn or until the notch in the valve lines up with the guide post. This setting is important as the notch is cut in the valve after the carburetor has been correctly set at the factory. The next thing to do is to adjust the air valve. This should be set so that the end of the air screw is flush with the end of the ratchet set spring.

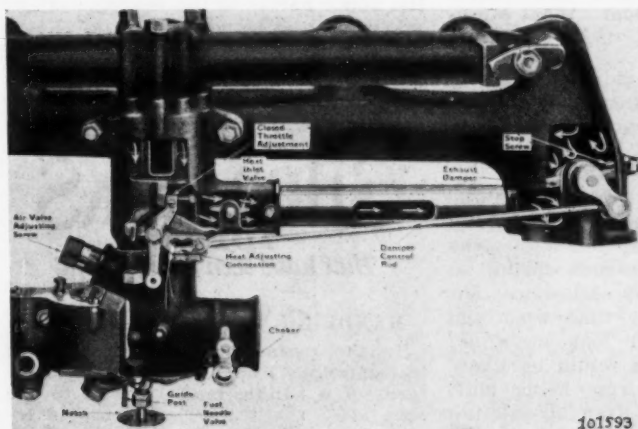
Now disconnect the damper control rod and set the damper so that it is closed and is up against the stop screw. Now with the heat adjusting connection in the No. 1 position replace the rod so that it does not interfere with this closed position of the damper. Now start up the engine and run it until it is thoroughly warmed up and readjust the air valve adjusting screw until you get perfect idling where there is no tendency for the engine to lope nor any tendency for it to stop. The heat adjustment may now be put in the No. 2 position which is usually correct. For unusual weather conditions however, the No. 1 or No. 3 position may be better and it would accordingly be well for you to try out the car with the heat adjustment in various positions to see if it corrects the condition that has been present in this Nash car.

## BAD TEETH WOULD CAUSE THIS

We have an Overland 5 passenger touring car, model 91 that has been driven 4863 miles. When running at speeds between zero and 18 miles an hour there is an occasional metallic thud and a jerk that seems to stop everything for a moment. At times the car will run along smoothly and again this peculiar condition will develop. This is particularly noticeable when I release the clutch and then engage it again. At speeds above 18 miles an hour and up to the limit of the car's ability, which is about 50 miles an hour, everything seems O.K. I have examined gears, clutch, and the inside of the engine by dropping down

the crankcase and everything seems to be all right. Also poured oil through the plug holes just over the universal joint and have tried the car with advance and retarded spark and the only thing that I notice is that this sound seems to be more pronounced on a loosely adjusted clutch than when the clutch has a tight adjustment. I do not suspect the differential, as everything works smoothly there. What can this trouble be?—P. L. LaBega, St. Thomas, V. I.

THE trouble that you are having is in all probability due to a tooth that is broken off of either the pinion or ring gear in the rear axle. At high speeds you pass over this defective part so fast that the trouble is hardly noticeable. When running at low speed and under considerable load you will feel the absence of this tooth and under some con-



Nash Special Six fuel heater

ditions the broken tooth may be picked up in the lubricant and may pass between the pinion and ring gear. Of course this would give a very violent thump and jerk. We would suggest that you wash out the differential and very closely examine the pinion and ring gear.

## TURN THE BEARING OVER

We are having trouble with a model 66 Willys Knight sedan which leaks grease out of the transmission into the clutch. The transmission has been filled four times since coming from the factory and the car has only run 6700 miles.—A. A. Skidmore, Ripley, W. Va.

WE understand that the inner and outer races of the front bearing of the transmission have notches which are used in assembling the bearing. In some cases if these notches are to the rear they seem to churn the grease and cause it to pass through the bearing and into the clutch. A remedy can be effected by turning this bearing around so that the notches face forward.

## Continental 8-R Timing Information

I have a Westcott car with a model 8-R Continental engine in it. This car is very slow on the get-away and has practically no pick-up until going 18 miles an hour or better. I have put in new rings, Boyle valves, checked the timing, put on new ignition coil and checked the distributor, rewired the car and put in new timing gears. I think I have the timing right, but would like to have you tell me what it is so that I will be sure.—Adams Garage, 5808 S. Broadway, Los Angeles, Calif.

IT sounds to us as though your timing were out or else as though the automatic advance were not functioning. It might be well to remove the ignition unit and have it checked up by some electrical service station that has a test bench designed to handle this kind of work. The valve timing on this car is as follows:

Intake opens  
12 deg. after  
top dead center.

Intake closes  
40 deg. after  
lower dead center.

Exhaust  
closes 8 deg.  
after top dead  
center.

Exhaust  
opens 40 deg.  
before lower dead center.

In addition it would be well to check the setting of the ignition. Place the spark lever on the steering sector in the fully retarded position and then turn the engine over with a crank until No. 1 piston is  $1\frac{3}{4}$  in. past top dead center on the compression stroke as measured on the flywheel. Remove the distributor cap on the ignition unit and loosen the clamp screw in the center of the distributor shaft. Then turn the breaker cam so that when the slack in the distributor gears is taken up in the forward direction the contacts will be just opened by the breaker cam and when the slack in the gears is taken up by rocking backwards the contacts will just close. In this position the timing is exactly right and the rotor that mounts on top of the distributor shaft should be connecting up with the wire that goes to No. 1 spark plug.



# Answers to Readers' Questions

## Oil Pressure Fails in Maxwell

We have a 1923 Maxwell that has been giving us trouble by the oil pressure not building up when the engine is started. The oil line leading to the main bearings and the suction line that leads to the pump and all connections have been carefully checked and a new pump installed. We have also checked all main and connecting rod bearings and have put in a new line between the pump and the oil gage. At times we get a pressure of 30 lbs. or more. When we once get this pressure it will stay up as long as the engine is running, but if the engine is stopped and permitted to stand for 20 min. or more the gage will not show pressure when the engine is started again. The owner has found that if he will spin the engine with the starter for a short time, then let it come to a stop and then turn on the ignition switch and then start the engine again that about nine times out of ten the gage will show a pressure of 30 lbs. or more at an engine speed of 20 miles per hour. What can be causing this trouble?—Blake Garage, Mellette, S. Dak.

YOU have so thoroughly checked over the lubrication system itself that we are inclined to believe that that part of the assembly is o.k. and believe your trouble is somewhere between the Oil-Vac and the suction connection on the oil pump from the engine. Incidentally we would suggest that you adjust the oil pump by-pass pressure spring so that the maximum oil pressure does not exceed 16 lbs. at any time when the oil is warm. An air leak anywhere in the Oil-Vac system would be likely to prevent pressure from being built up as the pump would draw air into the system much more readily than it lifts the oil from the sump. We can see no connection between the way in which the engine is started and the action of the lubrication system unless the manner of pressing on the starter button or of not pressing on it affects one of the oil lines. By that we mean that an oil line may be clamped to the dash and possibly your customer rests his foot against the dash and moves that line. Possibly either causing it to make good contact or to loosen at the connection or it may be the line in question has a small crack in it, that is either sprung open or closed, according to the way in which the starter is used. This, of course, is just a guess because mechanically there is no connection between the starter and the lubrication system on this particular car. The next time that pressure fails to develop when the engine is started, remove the suction line that goes to the Oil-Vac and plug up the suction connection on the oil pump. Of course the engine will only run a few minutes in this way as the Oil-Vac will not continue to draw gasoline from the gasoline tank, but that will be sufficient to

show where the trouble is. If pressure is developed when running in this way you can be sure that there is a slight air leak in either the suction line or the Oil-Vac. However, if there were a considerable air leak the Oil-Vac would fail to function.

### REPLACE ALL BEARINGS

We are having trouble with a 6 cylinder Oldsmobile model 30, with main bearings. Advise best way to tighten these bearings.—Lawrence Harper, Service Garage, 613 Railroad St., Valley Junction, Iowa.

THE bearings should not be adjusted. When they have worn so that the oil leaks out too fast or so that there is a tendency to knock they should be replaced. This is done by dropping the pan and the bearing caps. The shaft can then be lowered sufficiently so that the upper halves of the bearing may be taken out and new ones put in. Never replace one or two bearings but always put in all three.

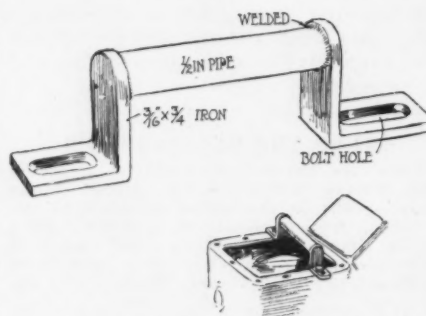
## SHOP KINKS

### IDEAS

That have been Found Useful

#### HANDLING THE TRANSMISSION

In the removal and replacement of transmissions I have a labor saver in the form of a handle made to bolt to the case after the transmission top is removed. It is bolted in the holes which hold the top. On heavy cases I use two. This gives the mechanic a firm grip on the case and enables him to remove or rapidly swing the case into place.—Marcus E. Rawlins, Jerome, Ariz.



Readers of MOTOR AGE are invited to submit ideas that they have found useful in doing some particular service job in the shop in a better or quicker way. For each one published \$2.00 will be paid. Whenever possible the idea should be accompanied by a sketch or diagram from which a drawing can be made.

## A Radiator Shutter Would Help

Is it advisable to put a quart of denatured alcohol in the oil reservoir of a 1926 Whippet to keep moisture in the oil from causing emulsion or causing solidification. It occurs to me that a quart of alcohol would seriously impair the viscosity of the lubricant at operating temperatures. Would it not be better to use the choke carefully and to frequently drain the oil and supply new? It seems to me a good radiator shutter would also obviate the necessity of radical treatment of this kind.—Herb Davis, Herb Davis Garage, Herbst, Ind.

ALCOHOL is not recommended by lubrication authorities as it is claimed to cause some corrosion of the polished bearing surfaces on the crankshaft. In any event a quart would be too much. From a quarter to one half pint would probably be ample. We also agree with you that nothing of this sort should be needed if the oil is changed frequently. In very severe climates, however, such as up in Canada, we have heard of alcohol being used as the lesser of two evils.

### NO ADJUSTMENT NEEDED

How are the rear radius rods adjusted on a Ford car?—Wisconsin Reader.

THE radius rods should never need adjusting. On the late type Ford cars there is no adjustment provided. On previous cars which used a couple of nuts at the front end of the radius rod it was possible to make adjustment, but there should never be occasion for it. However, when an axle is assembled after being overhauled the nut should be backed off and the propeller shaft allowed to take its normal position at right angles to the axle. The nuts should then be drawn up so as to maintain this position, but not to distort the propeller shaft to be from the position it normally takes. In case the nut should come loose so that the adjustment is lost it might be well to disconnect the spring from the axle and jack up both the axle and the car. This would leave the axle free to take its correct position. The nuts on the studs which attach the propeller shaft housing to the differential housing should then be drawn up tight. After this is done it would be permissible to set the nuts at the front end of the radius rod so as to maintain the alignment. The reason for jacking up axle and car is to allow the axle to take its normal position with reference to the propeller shaft tube. It might be preferable in doing this to have a jack under the center of the differential so that there would be nothing to interfere with getting the proper alignment.



# Answers to Readers' Questions

## FULL DETAILS ON WORM DRIVE AXLE ADJUSTMENTS

I keep a file of MOTOR AGE but have been unable to find detailed information regarding the adjustment of pinions and ring gears and worm and worm gears of rear axles. Have you at any time published a comprehensive article on the subject? For example the pinion is pushed further in to mesh on most cars by means of a pusher collar. Exactly how is it possible to tell when you have pushed the pinion far enough in to mesh? How can one tell when this operation is necessary on a car? How far should it be possible to revolve one wheel when it is jacked up when the transmission gear is engaged and the other wheel is on the ground if the rear axle is properly adjusted? What is the dangerous amount of slack?—W. J. Roper Lindsay, Bridestown, Kildinan, Fermoy, County Cork, Ireland.

I assure you that any information that you can be given on this subject will be of service and very much appreciated. Please let me have your answer at the earliest possible moment.

THE matter of the adjustment of pinions and ring gears has been dealt with from time to time in the Reader's Clearing House section of MOTOR AGE in the issues of Oct. 20, 1921, Feb. 2, 1922, July 6, 1922, Mar. 1, 1923, July 12, 1923, Aug. 7, 1924, Dec. 10, 1925.

The need for adjustment is generally noticed by a humming sound in the rear axle. To attempt to determine the amount of play in the pinion and ring gear by jacking up a wheel and turning it is very deceptive for the reason that such motion will indicate the lost motion of all of the parts from the rim itself to the transmission. Generally if the rim shows more than 3 inches of motion under these conditions it is time to check up and see where the lost motion is.

For the purpose of explaining the adjustment of worm drives we are showing a cut of a typical worm driven rear axle and are supplying information obtained from the Timken Magazine regarding the adjustment of this unit.

Differential bearings are lubricated by oil in the axle housing. They require no attention in connection with lubrication beyond keeping the correct amount of the proper lubricant in the housing and seeing that the oil grooves are kept clean. In adjusting the differential bearings a combination adjustment is necessary. First, all play must be taken out of the bearings by screwing up the adjusting rings on both sides of the differential, and second, the worm and worm wheel must be set in proper alignment by adjusting the differential bearings on both sides end for end, moving the differential and worm wheel to one side or the other as

required for correct alignment. All ordinary adjustments of these bearings should be made on the left hand bearing (standing at the rear and looking toward the front of the truck). Never disturb the right hand bearing except when it is necessary to take down the entire differential assembly. By making the adjustments on the left bearing only the alignment of the worm wheel will not be destroyed.

To adjust the bearings the differential carrier must be removed from the housing. Remove both drive shafts, remove the cap screws holding the differential carrier to housing, and having disconnected the propeller shaft lift out the entire carrier assembly. In most cases it will be necessary to remove the axle from the chassis before the carrier can be pulled out. Now release the lock on the left hand adjusting ring and tighten up the bearing by screwing in the ring with a flat tool until all end play or shake in the differential housing has been removed. Having obtained a good tight adjustment unscrew the ring one notch and lock in this position with the locking finger. If the alignment of the worm and wheel is not correct unscrew one ring at the same time tightening up on the other the same number of notches until the center of the worm wheel is directly under the center of the worm. Check up again for end play to be sure that the adjustment is all right. The carrier assembly may now be replaced, the axles put back,

and the axle reassembled under the truck. In replacing the carrier assembly be sure to tighten up well on the cap screws that hold the carrier to the axle.

### Worm Shaft Bearings

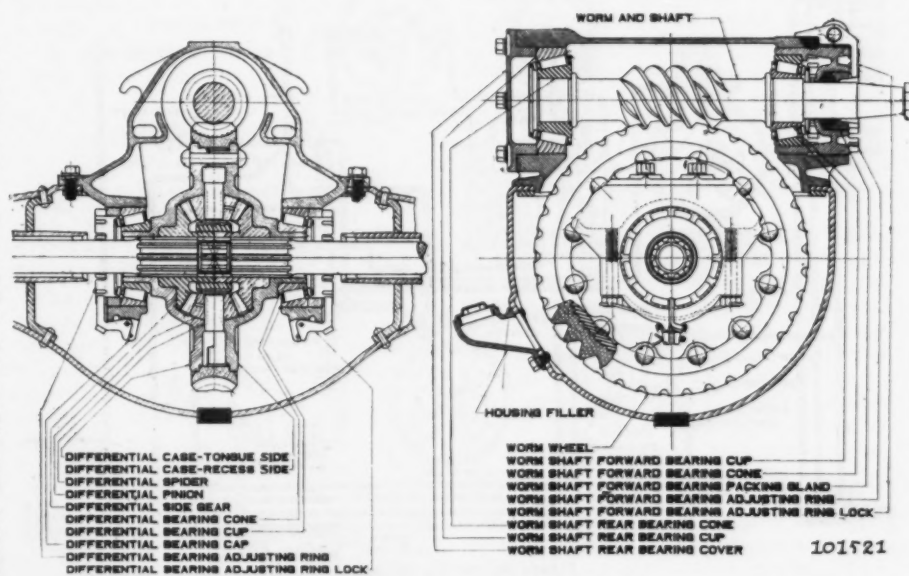
To adjust the worm shaft bearings first remove the packing gland from the carrier to avoid binding of the shaft and to allow free movement of the shaft. Next remove the lock from the slot and with a flat tool screw the forward bearing adjusting ring until the shaft binds. Now unscrew the ring several notches to allow end play so that the shaft can expand when it becomes heated under running conditions. The exact amount that the ring should be backed off is shown in the following table:

Size Axle	Play in inches	Number of notches
$\frac{3}{4}$ -1 $\frac{1}{2}$ ton	.011-.015	3
2-3 $\frac{1}{2}$ ton	.016-.020	4
5 ton	.020	4

Lock the adjusting ring in this position with the locking finger and replace the packing gland on the shaft tightening up on it sufficiently to prevent oil from leaking out at this point.

On such cars as the new Chrysler "70" in the event of finding a connecting rod burned out and the shaft in need of grinding what provision has the factory made for supplying undersize bearings?

Undersize connecting rods are available at the factory on the car in question.



Timken worm drive adjustment details

# Clearing Up Electrical Troubles

## Testing Recharged Batteries

I find in testing some mail order batteries that are brought in for charging that the gravity in many cases is practically nothing while the voltage reads around 1½ volts per cell. These batteries are sometimes practically new and will take a charge up to 2 volts per cell but I am not able to get the gravity over 1.250 even by leaving them on charge for a considerable time. I do not want to take a chance on changing the acid but at the same time I don't like to turn out a battery that will freeze or that will not give satisfaction from my charging. What would you suggest?—Jack Watts, Vandalla, Mich.

WE cannot tell from your voltage reading whether the reading was taken while the battery was being discharged or not, but a battery should not be discharged after the voltage has dropped to 1.7 V. per cell when being discharged. When fully charged and before being removed from the line, that is while the charging current is still passing through the batteries, the voltage should rise to 2.5 or 2.7 volts per cell. In general a battery is fully charged when all cells are gassing uniformly and when neither the voltage nor the gravity has shown any increase over a period of two or three hours. When fully charged the gravity of each cell should be between 1.280 and 1.300. If your batteries will not come up to this gravity and the voltage is correct you can withdraw some of the electrolyte with a hydrometer and replace that with electrolyte with a specific gravity

of 1.400. Let the charging continue for another 30 minutes in order to thoroughly circulate the heavier acid that was just added. Then take another gravity reading and if the specific gravity of each cell is not up to the proper point the process just outlined should be repeated until the specific gravity is between 1.280 and 1.300.

If neither the voltage nor the gravity will come up it indicates that there is internal trouble in the batteries. If the batteries are new it is most likely that the separators are at fault and if that is the case of course they must be replaced.

## DIRECTION OF CURRENT

In a battery, will current flow from the negative and positive posts or from the positive only?—W. H. King, King's Garage, Bells, Tex.

IT is usually considered that the current flows out from the positive and goes back in at the negative. In radio theory we figure that the current is the other way as indicated by the electrons going from the filament to the positive plates. In all of our electrical and magnetic theory however, which relates to generators and starters we figure on the current going from positive to negative. It is very much like the action of a belt. If the top of the belt is going in one direction the bottom of the belt which is on the other side of the pulley will be going in the other direction, but driving it either way will transmit the power.

## Effect of Two Spark Plug Gaps

I am using a set of spark plugs which give two positive sparks simultaneously. I assume this builds up extra electricity in the coil. If this is the case is there danger of my coil being damaged? I would also like to know whether or not a coil is made so that it is protected in case a wire comes loose from a spark plug and does not rest against the engine.—S. S. Davis, 1114 Stratford Ave., South Pasadena, Calif.

THE plug you have uses an intermediate insulated wire which is supported on the porcelain and the spark will jump to this wire and then will jump to the grounded wire so that there are really two sparks. The voltage which is built up in the coil depends chiefly on the distance across the spark gap and when the spark must jump two gaps it takes more voltage than to jump one. The double gap does not double the amount of voltage needed, but does cause some increase. The theory of two sparks in a cylinder at the same time is that firing the gas at two different places will enable the total quantity of fuel to become ignited quicker. On engines where a spark plug is used at one side of the cylinder and another plug at the other side it is evident that the fuel will be lighted at two places at once. Where two sparks are so close together, however, it is very questionable as to whether any benefit results. There is also the possibility of increasing the voltage which the coil must generate and accordingly increasing the strain on the insulation. The average battery ignition coil however, is quite well insulated and in fact safety gaps are rarely used. On high tension magnetos where the winding is more compact and where there was more iron in the vicinity of the coil it was usually considered essential to provide a safety gap. If you keep the two gaps in these plugs down to .020 in. we believe operation will be satisfactory.

## STUTZ IGNITION DESCRIBED

Give a description of the working of the new Stutz ignition system.—A Reader.

A WIRING diagram is shown which gives the general idea. The two sets of spark plugs are supplied by means of what amounts to two separate ignition systems. There are two coils, two interrupters and two condensers, although a single high tension distributor with two circuits in it takes care of the secondary current. The cam has 8 points on it and operates both interrupter arms. A single ignition switch supplies battery current to both ignition coils.

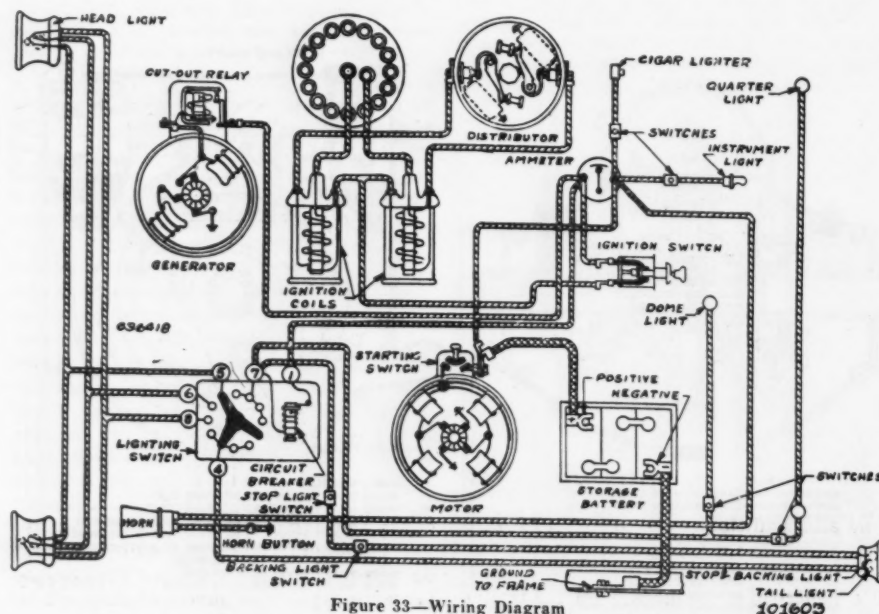


Figure 33—Wiring Diagram

Stutz wiring diagram



# Clearing Up Electrical Troubles

## Current That Flows Before Points Close

Is there any current from a generator before the circuit is closed? What part does the fine winding play in a Ford cutout or relay?—W. H. King, King's Garage, Bells, Tex.

AS far as the battery or lights are concerned there is no current flowing from the Ford generator until the cutout points close. However, as soon as the generator armature begins to turn there is current flowing. The armature will generate a voltage which will cause current to flow in the field winding and in the fine winding of the cutout or relay. The current in the field winding will increase the magnetic strength of the machine and cause it to generate a higher voltage. The current in the shunt winding of the cutout will magnetize the core of the cutout and increase the magnetic pull so that there is a tendency for the points to close. At very low speed this magnetic pull is not as strong as the spring tension so the points remain open. As the speed of the armature increases the current in the field becomes stronger and the voltage gets still higher so that the current in the shunt winding of the cutout gets stronger and the magnetic pull becomes greater. The adjustment of the cutout is usually made such that the points will close when the generator voltage is about 8. As soon as this happens we then have current going out to the battery or to the lights if they are turned on. In the diagram the arrows show the current flowing around the field circuit and also out to the cutout and back through the ground or metallic portion of the car or engine.

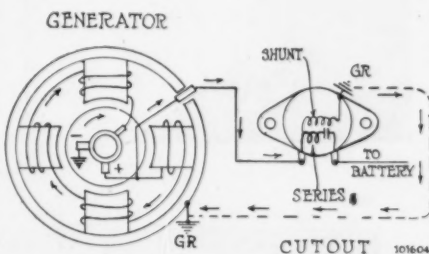
### BOOSTING FORD GENERATOR

We have experienced some difficulty with the regulation of a Ford generator. With the main brushes properly located at the neutral position we find that the cut in speed of the generator is quite high and the generator must be driven to 3000 R.P.M. to get the maximum charging rate. We have experimented by setting the third brush in the full retard position and then moving the entire brush holder, with all three brushes until we found the position at which the generator output was highest at 1000 R.P.M. We find that this gives us very good performance but are wondering if the generator will overheat when it is kept in this way.—Diver Service Shop, 225 N. Main St., Findlay, Ohio.

IF you are having trouble in getting the Ford generator to give its maximum output at speeds under 3000 R.P.M. it is quite likely that there is some trouble in the generator. Possibly the armature is at fault, having either an open or shorted coil or a coil that is not

well secured in the commutator segment. It sometimes happens that the insulation is not cleaned off from the leads of the windings perfectly and when they are soldered into the commutator segments the solder does not take well on the wiring and in a short time an open circuit develops. Under conditions such as these your generator may produce a little current but it is quite likely that it will be necessary to drive it at a very high speed in order to get anywhere near the normal output which should be in the neighborhood of 10 amperes.

The generator should cut in around 600 R.P.M. and should give about 10 amperes at about 1200 R.P.M. and have a maximum output of 14 to 16 amperes which should be reached well under 2000 R.P.M. We would not recommend setting the brushes in any way other



Current from generator before points close

than to first locate the neutral position for the main brushes and then set the third brush in order to get the desired output but never for an output in excess of 16 amperes.

Either running the generator for a prolonged period at a charging rate in excess of 16 amperes or operating it with the main brushes off neutral is likely to burn it up.

### ACTION OF STUDEBAKER SPARK ADVANCE

Kindly explain the action of the automatic spark advance that is used on the very latest Studebaker cars.—P. L. LeBega, St. Thomas, V. I.

THE very latest Studebaker cars have an ignition system that combines a manual and automatic spark advance. When timing the system the manual control, which is located on the instrument board, should be in the center position. This will give a little extra advance should this seem necessary for extremely high speed work and also additional retard for hard pulling at low speed. The automatic feature is of conventional design utilizing centrifugal weights which advance the spark according to the speed of the engine.

## Ignition Data on Diana

Please tell me the correct ignition setting and the proper ignition point adjustment on the Diana straight eight, 1926 model.—Earl Malone, 138 Backus Ave., Pasadena, Calif.

THE firing order of the Diana eight is 1-6-2-5-8-3-7-4. To time the ignition turn the engine over slowly until the piston in No. 8 cylinder is on top dead center of the compression stroke. Then notice which terminal on the distributor cap connects with this cylinder. Immediately below the center of this terminal make a fine scratch mark on the side of the distributor housing. Now remove the distributor cap and the rotor. Loosen the cam locking screw which is in the center of the four sided ignition cam. Put the rotor back in place on the cam and turn the cam so that the center of the distributor brush on the rotor is directly in line with the scratch mark previously made on the distributor housing. Then remove the rotor and very carefully adjust the cam so that one set of contacts is just separating and then tighten the cam clamping screw. The breaker points should be adjusted so that they open exactly .025 in. Retiming of the ignition should always be done with the spark lever in the retarded position.

### LOOK FOR BURNT PLUG POINTS

We have a Bessemer, 1923, dump truck that behaves in a peculiar manner. It is equipped with a Zenith carburetor. The bore is 4½ in. On this truck we have ground valves, installed new piston rings, cleaned carburetor and changed magnetoes and it still works the same. It seems to haul with considerable power at times but when you come to a hard pull, just about the time you need good power, it starts popping back in the carburetor and keeps this up until you stall on low gear. Then start it up again and you can put it in second speed and haul the load. Would like to have your theory on this.—George H. Thomas, Rural Valley, Pa.

THIS sounds like an old set of spark plugs that need to be replaced with new ones. Would suggest your looking at the points of the electrodes and see if they are burnt to a sharp thin edge so that they remain red hot under heavy pulling. There is something which is causing pre-ignition and firing the fuel charge while valves are open. A projecting piece of metal from the cylinder casting which will remain red hot may cause the same trouble in the combustion chamber. When you stop and start up again it probably gives time for the projecting piece of metal to cool off so that you are not bothered with preignition.

# TIMELY ACCESSORIES TO SELL

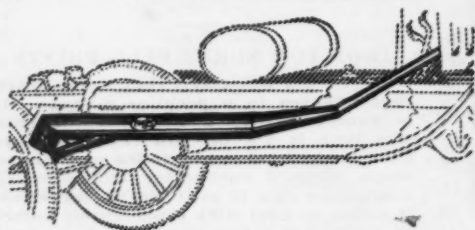
## Edde Oil Purifier

THE Edde oil purifier is a new device which combines electro-magnetism, gravity, momentum, eddy currents, a quiet area and sludge chamber for the thorough cleansing of automobile engine oil. The Edde purifier may be installed on the dash or at the most convenient place. It is connected to the main oil line anywhere between the oil pump and the engine.

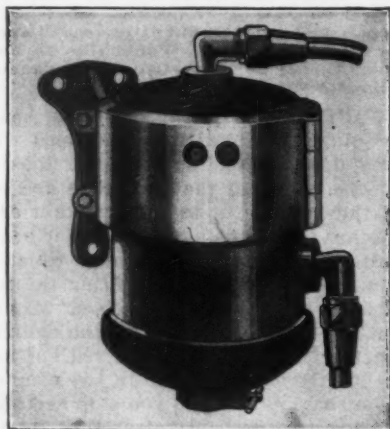
Surrounding the upper part of the instrument is an electro-magnetic coil which is connected in series with the generator. This coil is said to consume only a small amount of current. This electro-magnetic coil is said to extract from the oil all iron oxides and metallic particles. The device is manufactured by the Edde Mfg. Co., Milwaukee, Wis. The price is \$16.50.

## Taylor Loud Speaker

TAYLOR 2 in 1 Loud Speaker is a replacement muffler which also incorporates a cutout. To install it the old muffler is removed and the tapered exhaust pipe on the Loud Speaker is cut at the point where it will fit the exhaust pipe on the car. By this means the one model of Loud Speaker may be adapted to fit any size exhaust pipe from 1½ to 3¼ in. in diameter. As a muffler the Loud Speaker is said to be unusually quiet and by means of a cable and pulley it can be converted into a cutout testing valve. It is manufactured by the Koolfast Radiator Co., Toledo, O., and the price is \$9.50.



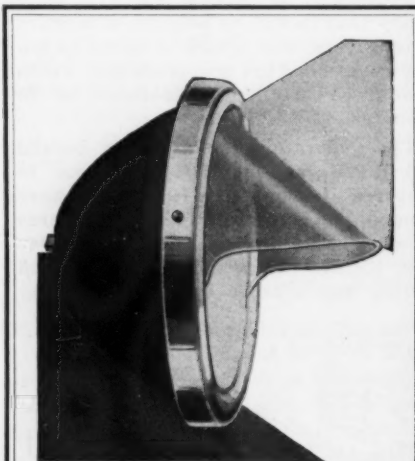
Taylor 2 in 1 Loud Speaker



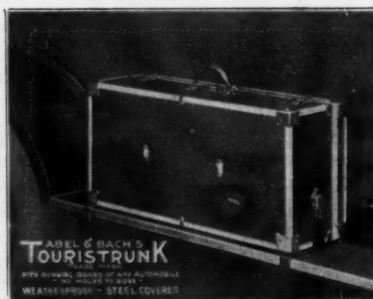
Edde oil purifier

## Breeze Filter Windshield Screen

BREEZE Filter is an insect-proof windshield screen for use on cars equipped with VV type of windshield. It is made of fine mesh copper wire and the frame is finished to match the instrument board. It screens both ventilation openings. It is quickly installed without drilling any holes and is provided with rubber bumpers to prevent rattle. It is made by the Albion Metal Products Co., Albion, Mich.



Visolite



Touristrunk for use on running board

## Touristrunk

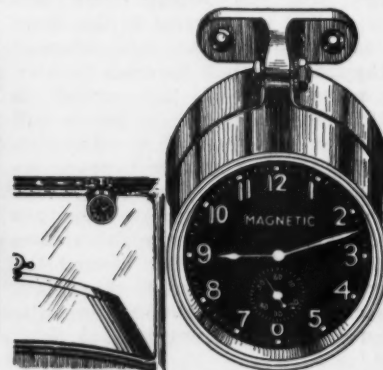
THE Touristrunk is an automobile luggage carrier which has been especially designed for attachment to the running board. It is made of steel or hard vulcanized fibre and is waterproof. The trunk is attached to the running board by means of two heavy spring steel clamps fitted with set screws.

## Visolite Deflector

VISOLITE is a transparent green shield which fits under the headlight rim and over the upper half of the lens to prevent bright lights from causing glare to motorists coming from the opposite direction. It is made by the Auto-Light Deflector Co., Alliance, Ohio, in sizes to fit all cars and the price is \$1.50 a pair.

## Magnetic Clock

THE latest model magnetic clock manufactured by the Magnetic Clock Co., Hartford, Conn., may be mounted either on the steering post or at the top of the windshield. This clock is electrically wound and gives the time continuously without attention. It is finished in either gun metal or nickel plate. The clock complete with wires and bracket for either overhead or steering post mounting is priced at \$12.



Magnetic clock

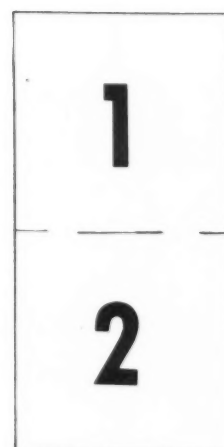
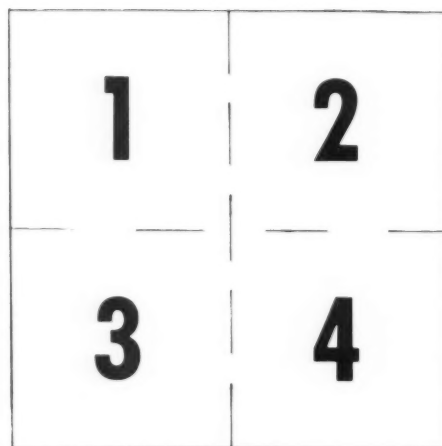


"Breeze-filter" windshield screen





Maps on this order too large to be e  
are filmed clockwise beginning in the  
right and top to bottom as many fram  
diagrams illustrate the method.





o be entirely included in one exposure  
in the upper left hand corner, left to  
ny frames as required. The following

<b>1</b>	<b>2</b>	<b>3</b>
<b>4</b>	<b>5</b>	<b>6</b>
<b>7</b>	<b>8</b>	<b>9</b>



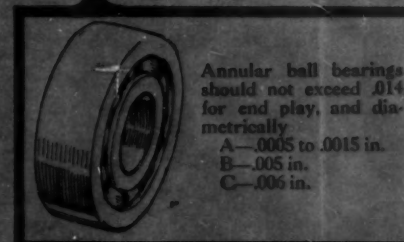
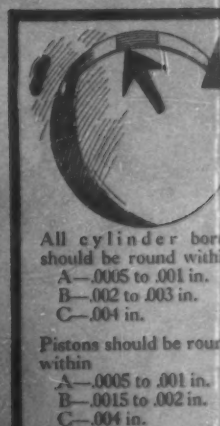
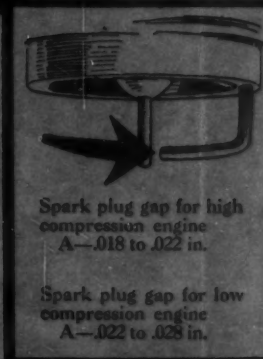
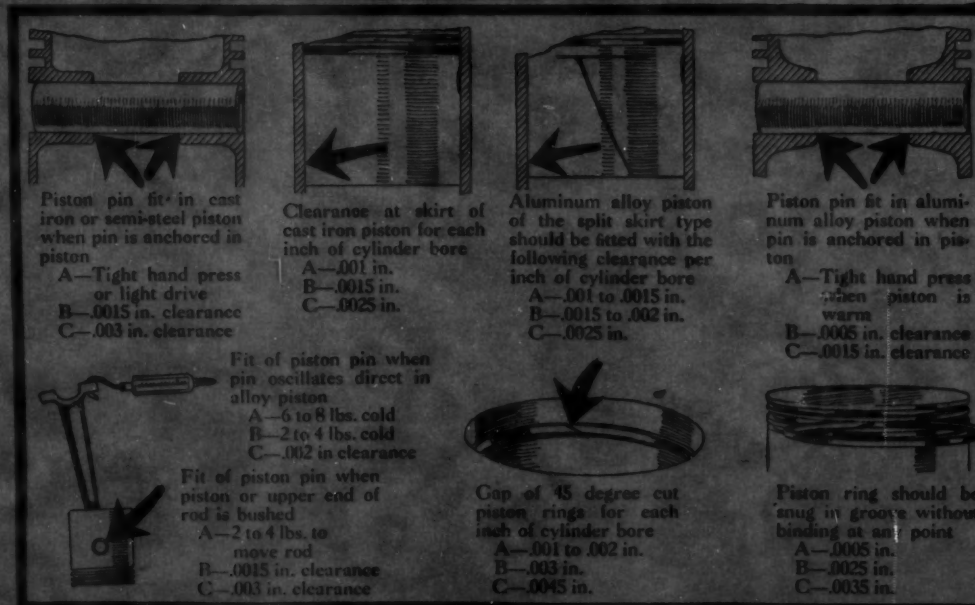
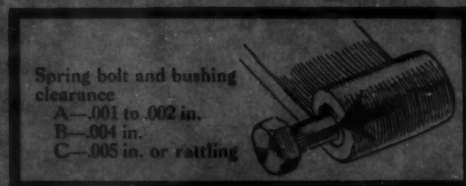
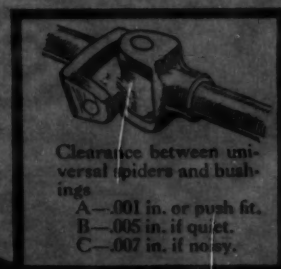
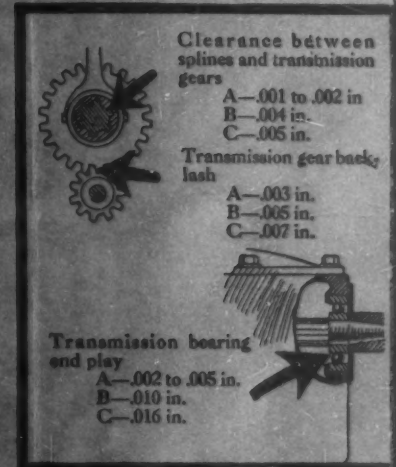
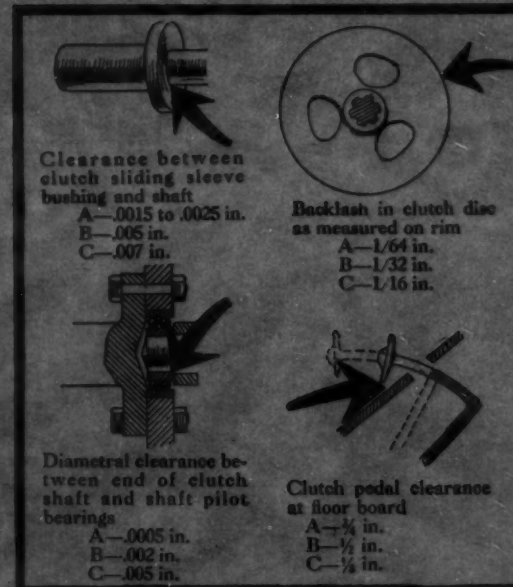
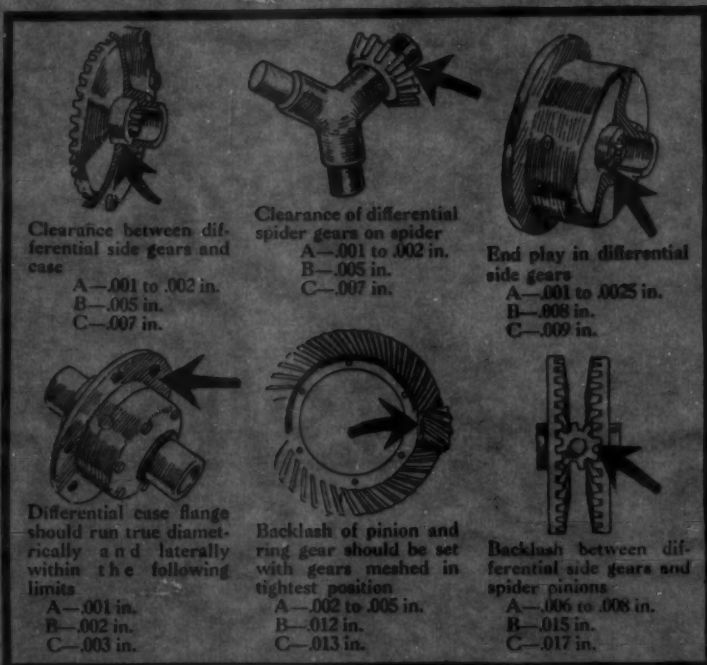
Compiled by  
C. EDWARD PACKER

Illustrations by  
TOM WILDER

# MOTOR AGE MAINTENANCE

To be used as a guide in determining when  
replace working parts

A—Ideal or desirable. B—Serviceable. C—Reject





# MAINTENANCE STANDARDS CHART

a guide in determining when it is advisable to adjust, repair or replace working parts of the automobile

B—Serviceable. C—Reject, adjust or repair, or replace with new parts



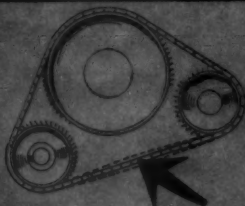
Adjustment of wheel  
bearings

- A—Draw tight and then back off 1/3 turn.
- B—requires 1/2 turn to draw tight.
- C—Requires 2/3 turn to draw tight.



Wheel bearings in hub  
and on spindle

- A—Cups a light drive fit.  
Cone a light press fit.
- C—Cones or cups loose, rotating or chipped.



Timing chain adjustment should provide the following up and down movement of chain midway between crankshaft sprocket and accessory sprocket.

- A—1/4 in.
- B—1/2 in.
- C—3/4 in.



Backlash between timing gear teeth

- A—.0015 to .0025 in.
- B—.003 in.
- C—.005 in.



Toe-in of front wheels with high pressure tires

- A—3/16 to 1/4 in.
- C—1/2 in. or more

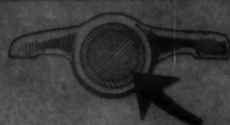
Toe-in of front wheels with balloon tires

- A—1/4 in.
- C—1/2 in.



Clearance between valve stem and guide

- A—.002 to .004 in.
- B—.006 in.
- C—.008 in.



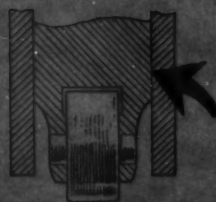
Clearance between rocker arm bushing and shaft

- A—.0015 to .002 in.
- B—.003 in.
- C—.006 in.



Cam follower roller should be round within following limits

- A—.0005 to .001 in.
- B—.0015 in.
- C—.0025 in.



Clearance between cam follower and guide

- A—.0005 to .002 in.
- B—.003 in.
- C—.004 in.



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# Electrical Data for Chrysler Model 50, 1926

## GENERATOR

Remy—Type 947-A

Rotation Clockwise From Drive End

### Performance Data—

Output at 1,000 R.P.M.—7 amp., 7.0 to 7.3 volts.

Maximum Cold Output—17 amps. at 8.05 volts, 1,800 R.P.M.

Maximum Hot Output—13 amps. at 7.85 volts, 2,000 R.P.M.

Field Test—4.5 amps. at 6 volts.

Brush Tension—24-28 oz.

Regulation by Third Brush, no thermostat used.

## STARTER

Rotation Clockwise From Drive End

Remy Type 712-F

Running Free—70 amps. at 5 volts, 5,000 R.P.M. approx.

Lock Torque—11 lb. ft., 450 amps. at 3.6 volts.

Brush Tension—24-28 oz.

## RELAY

Remy 265-B

Breaker—contact points close at 800 R.P.M.

## DISTRIBUTOR

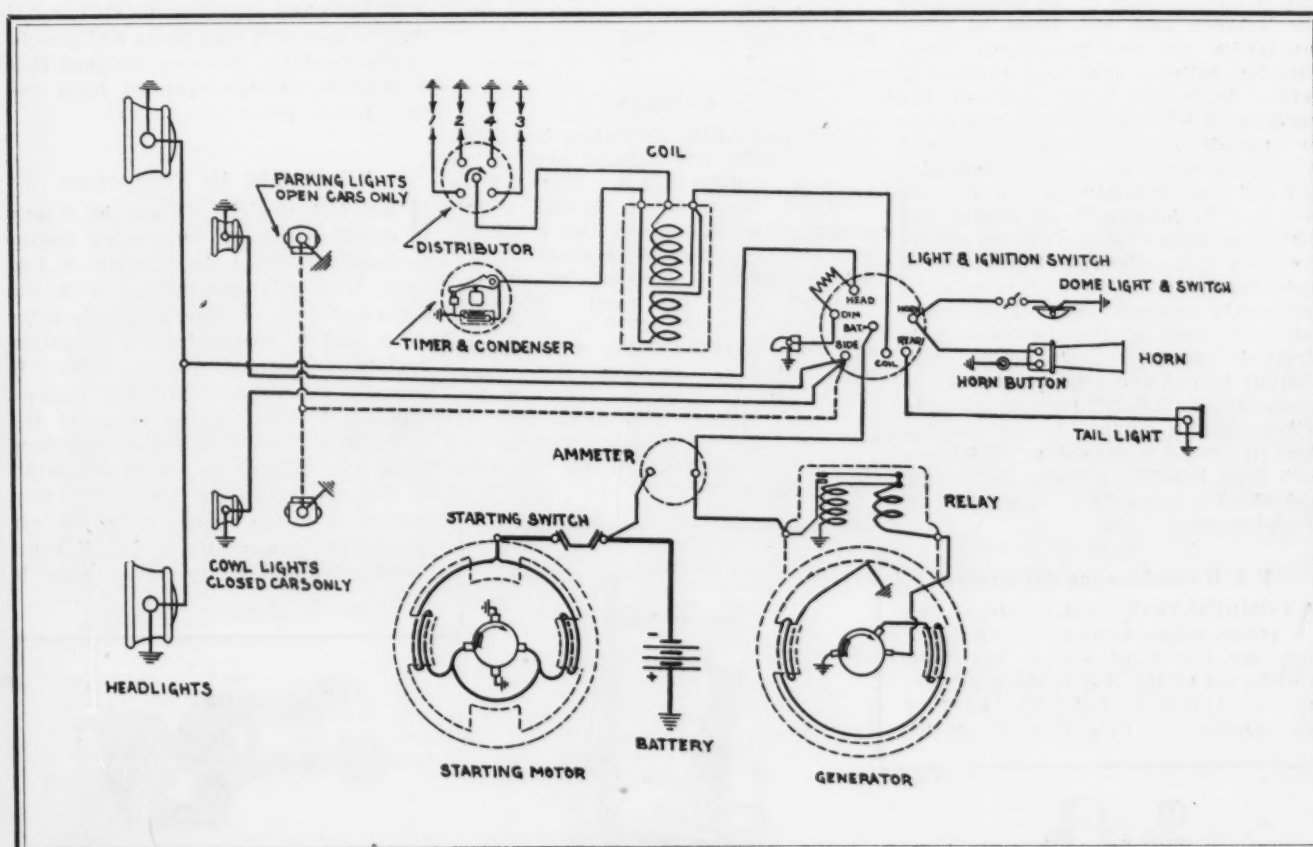
Remy Model 638-B

Manual advance—22 deg.

Automatic advance—19 deg.

Total advance—41 deg.

Rotation clockwise, viewed from top.



## New Device Records Riding Comfort

A new instrument which records the degree of comfort or discomfort in automotive vehicular construction has been developed by the U. S. Bureau of Standards. The device, known as the accelerometer, is being tested on the seats of public buses in Washington and on vehicles of intercity buses as well as in private cars.

The instrument measures the force exerted in the motion of the vehicle with respect to the relative comfort of its passengers, the record being made by means of an electric current operating only when acceleration is excessive.

The survey shows that discomfort in riding does not arise from uniform motion but from increased or decreased speed and from verticle motion caused by road unevenness.

In one test with two experimental types of automobile seats one was found to cause twice as much discomfort as the other. The bureau expects soon to be able to make definite recommendations as to the most comfortable types of seats for various classes of vehicles.

## Correction on Automatic Choke

On page 19 of the March 17th, 1927, issue of MOTOR AGE an automatic choke device made by E. J. Hifner of Lexing-

ton, Ky., was described. Further information from Mr. Hifner indicates that the operation of the device is independent of the spring action and that the spring is merely used to prevent hammering of the valve on the seat.

## Dealers Meet at Van Wert, O.

VAN WERT, April 30.—An enthusiastic meeting of automobile dealers, bankers and finance men recently was held at Van Wert, sponsored by A. C. Faeh, secretary of the Ohio Council of the National Automobile Dealers' Association. About 30 attended and the round table discussion, following the dinner, lasted for three hours. Mr. Faeh explained various features of the dealer's business.

# AIDS *for* BETTER SHOP SERVICE

## Fleming Tool Chest

DESIGNED to sell all kinds of small tools for the automotive equipment wholesaler and especially to stimulate greater interest on the part of mechanics in owning their own precision tools, the Fleming Machine Co., Worcester, Mass., has produced a special tool chest listing at \$12. It is made of heavy gage steel, size 12x12 in. x 19¼ in. Folding trays open with the lid. A special drawer for the precision tool set, which locks automatically when the lid is down, is provided.

The Fleming Co. is urging the proprietors of the repair shops to buy precision tools at wholesale from the jobbers and sell them to their mechanics on the installment plan. Fleming believes that this method of selling tools will bring much of the business to jobbers, which is now going to specialty salesmen at retail and wholesale, who call on the mechanics and sell them individually. In a folder sent out to jobbers it is pointed out that "the secret of success in selling small tools is in selling from the tool itself." The advantage of carrying a completely equipped tool chest, when calls are made on the service shop is stressed. Each tool should be individually tagged and priced. Fleming is conducting an advertising campaign to sell mechanics on the idea of "owning their own" and is furnishing to jobbers with their imprints a folder listing the tool chest together with a number of precision sets.

## R & R Combination Oil Pump

A COMBINATION water circulating pump, oiling system and vibrating horn for the Ford engine has been brought out by the R & R Manufacturing Co., Anderson, Ind. The head of this company is Robert M. Roof, de-

signer of racing cars and special attachments for racing cars. The water circulating pump is of the centrifugal type with a capacity of 30 gallons of water a minute. The induction pipe is of sufficient size to permit thermosyphon circulation in event the fan belt breaks. The impeller is of bronze with spiral vanes. The oiling system is driven through a shaft connected with a universal joint on the end of the water pump impeller. A two-gear oil pump is used. The oil is distributed to spray nozzles in the crankcase which throw a small stream of oil continuously on each connecting rod. The shaft which operates the oil pump carries a ratchet which operates the horn. A foot pedal is used to engage the ratchet. The price of the unit is \$25.

## Kwicksaw

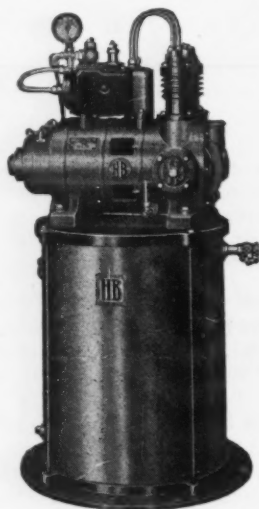
PORTER-CABLE Kwicksaw is a light electrically driven hand saw which operates at high speed. The saw is mounted direct on a special motor armature which runs in two precision ball bearings, packed in grease. The outfit weighs 10 pounds and can be operated with one hand. Standard equipment consists of 10 ft. of rubber covered conductor cable with duplex plug and one 7 in. combination saw which may be used for both ripping and cross cutting. The motor may be had for 110 or 220 volts. The manufacturer is the Porter-Cable Machine Co., Syracuse, N. Y.

## Manley Universal Auto Lifter

A NEW movable lifter for the automotive shop, which has a wide variety of uses, is being manufactured by the Manley Mfg. Co., York, Pa. The illustration on this page shows the main features of this device. Some of the uses listed by the manufacturer are unloading automobiles from freight cars, raising front or rear of an automobile and lifting transmissions or engines out of chassis. It may be used to lift from the bottom and the maximum lift is 7 ft. 2 in. The machine weighs 240 pounds. The price of the lifter with short base is \$85 and with long base and attachments \$108.50. It may be had with both bases and attachments for \$115. It is so designed that it may be quickly changed from one base to the other.

## HB Upright Air Compressor

THE HB Upright Trojan is a new space saving air compressor manufactured by the Hobart Brothers Co., Troy, Ohio. It is equipped with the HB silent twin compressor, fully automatic and is mounted on a 26 gallon upright, heavy duty storage tank. It occupies floor space only 2 ft. square. The construction is the same as the larger HB compressors, the difference being only in the capacity of the outfit. It has an automatic start and stop switch, accurate pressure gage, air filter, oil and moisture drain, oil gage, check valve and safety valve. Price is \$179.



HB upright air compressor



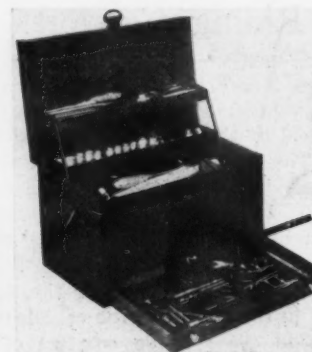
Manley auto lifter



Kwicksaw

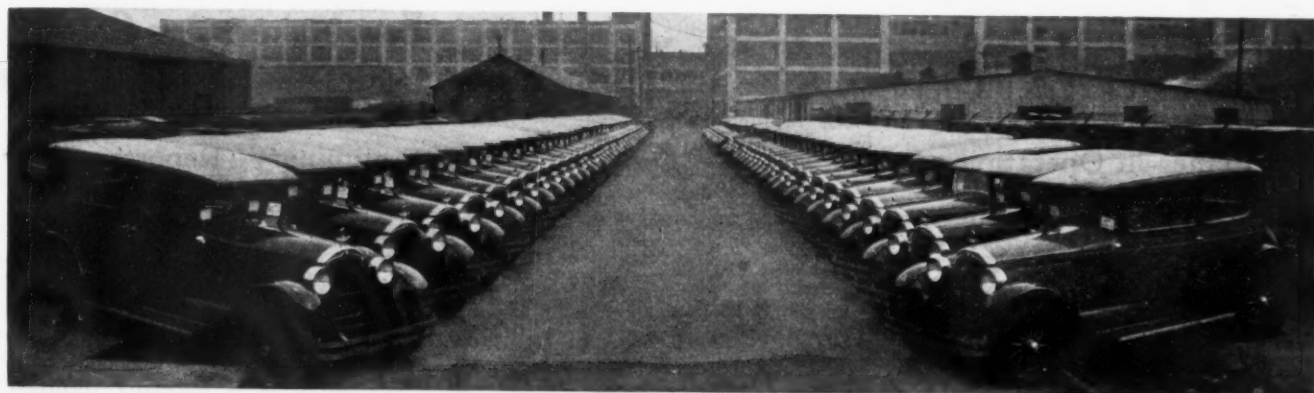


Roof combination oil and water pump and horn for Fords



Fleming tool chest

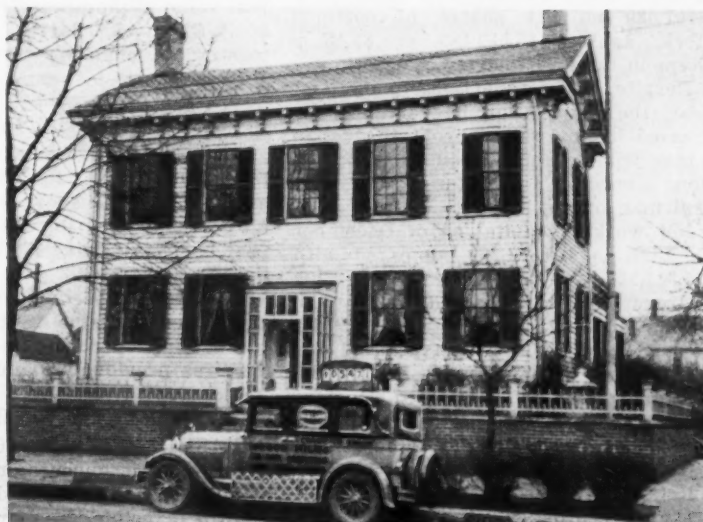
# WHAT THE CARS ARE DOING



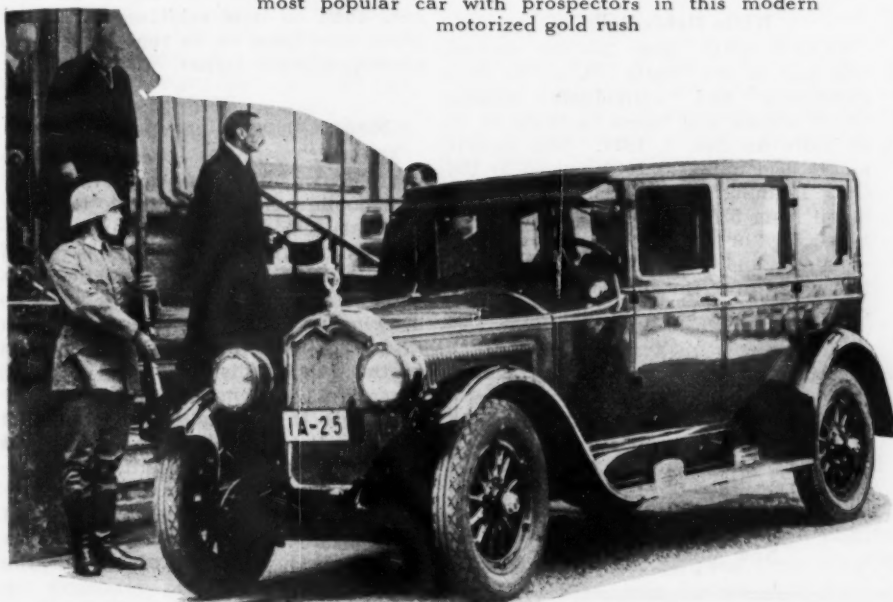
79 HUPMOBILE EIGHTS claimed to be the largest single shipment of eight cylinder cars ever delivered to one company, ready to leave Detroit en route to the Gambill Motor Company, Chicago



FRANK HORTON, JR. AND SR. The former discovered gold at Weepah. The latter, his backer, drives a Chevrolet. In fact Chevrolet claims to be the most popular car with prospectors in this modern motorized gold rush



HERE IS THE 100,000 MILE OAKLAND TRAVELER which is starting on its second 100,000 miles after doing the first at the rate of over 600 miles per day for 163 days on a treadmill. It is now on a tour of the country and has covered 6000 miles of a 20,000 mile trip in the form of a figure 8, touching most of the states and large cities. Our picture shows it in front of the Lincoln Home, Springfield, Illinois, on its way southwest



THE KING OF DENMARK ABOUT TO ENTER HIS BUICK at Berlin after having called on President Paul von Hindenberg of Germany. Hindenberg (bareheaded) is seen in the background



# PRODUCTION HOLDS APRIL LEVELS

## Marked Gain in Earnings Scored by Chrysler Corp.

### Economies in Operation and Larger Volume Widen Margin of Profit

NEW YORK, April 30.—A notable gain in earnings for the first quarter of 1927 over the corresponding period a year ago is reported by the Chrysler Corp. and subsidiaries. Net profit in the first three months was \$4,392,569 after charges and federal taxes, equivalent after dividend requirements on \$8 preferred stock to \$1.46 a share on 2,707,080 no par shares of common stock, against \$3,559,189 or \$1.15 a share in the first quarter of 1926.

Despite price reductions made last year, the corporation has actually increased its margin of profit through a larger volume and economies of operation, according to Walter P. Chrysler, chairman of the board.

Net working capital as of December 31, 1927, is \$30,874,269 compared with \$25,311,124 on March 31, 1926. This improvement is accounted for by the ending of heavy expenditures for development of new properties and for introduction of new lines. During the first quarter of 1927, only \$797,859 were spent on additions to permanent assets, against \$1,656,498 in the same period last year.

Retail deliveries continue to break all previous records.

Stocks of cars in dealers' hands April 23 were equal to only six weeks' sales at current rate of delivery. A shortage of some models already exists and prospects are Chrysler dealers will enjoy unprecedented spring business.

Export sales the first quarter amounted to 15 per cent of total, compared with 10 per cent last year.

Chrysler Corp. declared regular quarterly dividend of 75 cents on the common, payable June 30 to stock of record June 15.

### Boyce Upheld by Court

NEW YORK, May 2.—Decision in favor of Harrison H. Boyce and the Moto-Meter Co., Inc., in the suit for infringement against the Semaphoric Indicator Co. and the Semaphoric Indicator Sales Co., has been upheld in the

U. S. Circuit Court of Appeals at Chicago, and the immediate enforcement of the decree of the lower court was directed.

An injunction has been issued terminating the further manufacture or sale of the Moore motor semaphore. Accounting proceedings to determine the amount of damages and profits by the Semaphoric Indicator companies are now under way.

### Postpone Rickenbacker Sale Again

DETROIT, April 30.—For the third time in as many weeks, the receiver's sale of the Rickenbacker Motor Co. has been postponed. The next sale will be held Thursday, May 5, at the factory. Bids received at the three previous sales have not approached the real value of the property in the opinion of William S. Sayres, Jr., standing master of chancery for the district Federal court.

### 61 Per Cent Tire Output Gain

AKRON, May 2.—Sales of the Seiberling Rubber Co. for the first three months of 1927 show an increase of 61 per cent over the same period last year, the totals being 179,725 and 111,300 tires, respectively.

The new Seiberling tire soon to be announced contains 25 per cent more cotton and 20 per cent more rubber than the tires previously manufactured.

### Lighter Taxes on Old Cars

WASHINGTON, April 30.—The French government is encouraging greater use of old automobiles by reducing by one-half all taxes on cars more than 9 years old on January 1, 1927, the U. S. Department of Commerce announced. Large numbers of old cars are being operated in France and many will be affected. Full taxes are very heavy, ranging from \$14 to \$241 per year.

### White Holds Roll Call

CLEVELAND, May 2.—The annual roll call of the White Co. shows 1104 companies and individuals owning 39,587 trucks and buses in fleets of 10 or more on Jan. 1, 1927. The largest single fleet numbers 2030, owned by the Gulf Refining Co. Seven fleets numbered from 525 to 1105; 54 fleets numbered 100 or more; 146 numbered 50 or more, and 368 more than 25 each. Net gains over the previous year's roll call were 143 fleet owners and 4102 units.

## Few Makers Are Getting Under Way on New Lines

### Preliminary Reports Show But Moderate Gain in Sales Last Month

NEW YORK, May 3.—Preliminary reports from scattered sections on the volume of April motor car sales do not indicate that there was a decided gain over March, as is normally recorded. But although the usual seasonal upswing may not have taken place, this development is viewed in the industry in the light of the very large of business done in March by a majority of the companies. Good spring selling weather came earlier this year in many important sections of the country and it was natural to suppose that the market may have been anticipated to some degree.

A continuation of the current sales volume through May would be regarded as satisfactory but some manufacturers are looking for even better business during the month. Production is being held at approximately the levels prevailing in the latter half of April. A few manufacturers are getting under way on new lines and will probably register slight gains.

Used car stocks are fairly heavy, especially in the rural communities and in some parts of the west and south. While most observers of the industry would like the stocks much lower, there is some consolation in the thought that most of the vehicles were taken in at lower prices than prevailed a year ago.

The finance companies are exerting pressure on dealers to keep used car valuations at a low point. Repossessions have always been higher on used cars than on new vehicles and losses when cars have to be repossessed are correspondingly higher.

### Study Compensation of Salesmen

ATLANTA, May 2.—A comprehensive study of the subject of remuneration for automobile salesmen in both the new and used car departments, and including motor truck salesmen, is being made by the Atlanta Automobile Sales Managers' Association with a view to drawing up some plan of compensation that can be made more or less uniform in the Atlanta district. Not only are successful compensation plans used by the trade in Atlanta being considered but also the best plans of dealers and distributors in all large cities throughout the country. Officials of the association believe that use of a uniform plan by all members would result in benefits both to the dealers and the salesmen.

## New Models Added to MOTOR AGE Prices and Weights Tables in May 5th Issue

Make	Model	Body Style	Old Price	New Price
Vellie	Std. 50	Roadster	New Model	\$1165
Reo	Wolverine	Brougham	New Model	1195

## Hudson Co. Announces Essex Sedan DeLuxe

New Model Priced at \$895  
Makes Sixth Body  
Style for Line

DETROIT, April 30.—Hudson Motor Car Co. announces an Essex Super-Six sedan de luxe, listing at \$895, which makes use of an "airplane type of construction," with aluminum panels fabricated with steel body framing. The body is built in Hudson's own body plant, and brings the number of Essex bodies up to six, as follows: speedabout speedster, coupe, coach, standard sedan and de luxe sedan. These range in the field from \$700 to \$895.

The offering of the new car is interesting in that it calls attention to Hudson-Essex action this year in presenting a variety of cars. A year ago, only six models were available in the combined Hudson-Essex line—with more than 80 per cent of business in coaches. On the Hudson Super-Six chassis there are now offered the roadster, phaeton, coach, standard sedan, the custom-built brougham and the custom-built sedan in 5 and 7-passenger sizes. This covers the field from \$1285 to \$1850.

### Van Sicklen Sells Elgin Interest

CHICAGO, April 30.—Norton H. Van Sicklen, Jr., who was formerly business manager of MOTOR AGE and since 1922 has been an official of the Elgin Clock Co. at Elgin, Ill., has sold his interest in the Elgin Clock Co. and has become associated with A. B. Leach & Co., Inc., bond and stock brokers, in their Chicago office.

### U. S. Leads in Casing Exports

WASHINGTON, April 30.—The United States leads the world in automobile casing exports, according to a comparative analysis of the tire export trade of the leading manufacturing countries last year, just completed here by the U. S. Department of Commerce.

Last year the United States exported 1,654,584 casings, as compared with 1,152,070 for Canada, 904,448 for the United Kingdom, 1,901,790 for France, 720,491 for Italy, 208,618 for Germany and 194,942 for Belgium.

### Pierce Profits Announced

DETROIT, April 30.—Pierce-Arrow Motor Car Co. for the quarter ended March 31, 1927, reports net income \$43,774 after depreciation, interest and federal taxes, equivalent to 45 cents a share on outstanding 100,000 shares of 8 per cent cumulative preferred stock. This compares with \$328,982, equal to \$3.28 a share on preferred and 39 cents a share on 328,750 shares of common stock, after allowing for regular 2 per cent quarterly preferred dividend requirements in the first quarter of 1926.

### Canadian Output for March

WASHINGTON, April 30.—Canadian production of motor vehicles in March totaled 19,089 passenger cars and 3,534 trucks, as compared with 14,826 passenger cars and 3,829 trucks in February and 17,889 passenger cars and 4,385 trucks in March, 1926, it was reported to the U. S. Department of Commerce by the Dominion Bureau of Statistics.

### Dividend by Packard

DETROIT, April 30.—Packard Motor directors declared monthly dividend of two per cent on the common payable June 30 to holders of record at close of business August 15. Books will not be closed.

## Business Conditions

Department of Commerce Gives  
View of Current Situation

The dollar volume of trade for the week ending April 23, as measured by check payments, was larger than in either the preceding week or the corresponding week of 1926, according to the weekly statement of the Department of Commerce. Wholesale prices continued to decline, being substantially lower than in the corresponding week of the preceding year. Loans and discounts of Federal reserve member banks receded slightly from the previous week but were still well above the corresponding week of last year. Interest rates on time money averaged higher than in either the preceding week or the corresponding week of 1926. Bond prices, though showing no change from the preceding week, were substantially higher than in the same week of the previous year. Interest rates on call loans, although showing a decline from the preceding week, averaged higher than in the same week of last year. Prices of stocks listed on the New York Stock Exchange continued to increase, both as compared with the preceding week and the corresponding week of the previous year.

Loans to brokers and dealers made by Federal reserve member banks in New York City and secured by stocks and bonds were larger than in either the previous week or the corresponding week of 1926. The Federal reserve ratio averaged higher than in the previous week or the same week of last year. Bills discounted by Federal reserve banks were smaller than at the end of the previous week or the same period a year earlier. Receipts of cotton were higher than a year ago. Business failures were less numerous than in either the preceding week or the corresponding week of the previous year.

New building contracts awarded during the first three weeks of April were running higher than a year ago. Distribution of goods, as seen from data on carloadings, was higher than last year.

## Ohio Groups to Discuss Legal Aspects of Sales

New Series of Discussions  
Planned by Council of  
N.A.D.A. for Trade

COLUMBUS, O., April 30.—Arrangements have been completed for another series of educational meetings of local automobile dealers, sponsored by the Ohio Council of the National Automobile Dealers' Association. The meetings will be held in practically every section of the state and will be confined to discussions of the "Legal Phase of the Automobile Sale."

The headliner in these meetings will be Frank X. Schaut, counsel for the Cleveland Automobile Manufacturers' and Dealers' Association, who is recognized as an authority on such matters.

He will trace the sale from the inception to the finish, showing both the tangible and intangible returns or losses accruing therefrom.

The schedule of meetings for the first two weeks is as follows: May 5, noon, Massillon; May 5, evening, Akron; May 6, noon, Warren; May 6, evening, Youngstown; May 13, noon and evening, Canton; May 16, noon, Lorain; May 16, evening, Sandusky. The schedule for later meetings will be announced within a short time.

### Stutz Enters Atlantic City Event

INDIANAPOLIS, May 2.—The three Stutz cars that were driven in the recent tests on the speedway at Indianapolis have been entered in the 75-mile stock car event to be held on the Atlantic City speedway May 7, it is announced by the Stutz Motor Car Company of America. This will include the five-passenger stock sedan which was awarded the Stevens Challenge trophy for performance on the Indianapolis track as well as a Stutz sedan with Weymann body and the Black Hawk Stutz roadster.

### Brass Concerns Combine

DETROIT, April 30.—Three of the largest brass manufacturing concerns in Detroit have been merged into the General Brass Corporation. Companies included in the combine are the McRae & Roberts Co., the Michigan Lubricator Co. and the Standard Peninsular Brass Works. Manufacturing activities of the three companies will be centralized at the McRae & Roberts plant which will be enlarged.

### View New Reo Models

DETROIT, April 30.—Many Reo representatives from throughout the country were in Lansing this week attending the Reo Speedway conference when they were introduced to the Speed Wagon Junior for the first time and the new Reo Wolverine, companion car to the Flying Cloud.



## First Quarter's Earnings for G.M. Hit \$52,551,408

### Current Conditions Are Satisfactory Declares President Sloan

DETROIT, April 30.—General Motors Corporation continues to exemplify itself as a dividend earner, the quarterly statement issued by Alfred P. Sloan, Jr., president, reveals. Earnings of the corporation, including equity in subsidiary operations, and available for dividends, for the quarter ending March 31, aggregate \$52,551,408, compared with \$44,911,618 for the corresponding quarter in 1926.

"For the sake of this comparison," Mr. Sloan states, "there has been included in the last year's earnings the minority interest in Fisher Body Corporation at that time outstanding. After deducting dividends on preferred and debenture stock, there remains applicable to common stock \$50,493,278 for the current period as compared with \$43,000,983 a year ago, the comparison being on the same basis. The earnings in the first quarter of 1927 equalled \$5.80 per share on the common stock. In the corresponding period last year, not including the minority interest in the Fisher Body Corporation, earnings amounted to \$5 per share on the common stock then outstanding, after making allowance for the increased number of shares resulting from the stock dividend paid September 11, 1926.

"Current conditions are satisfactory," said Mr. Sloan, who added that a detailed statement will be forwarded to stockholders in due course.

### French Makers Reduce Prices

WASHINGTON, April 30.—Leading French automobile manufacturers have reduced prices from 10 to 20 per cent during the past two months, the U. S. Department of Commerce was informed by cable. The price changes have been signaled by publicity of unprecedented volume, full page advertisements, which are rare in France, in many cases announcing the reductions.

### To Distribute Auburn

SPOKANE, Wash., April 30.—Chester S. "Chet" Johnson, automotive distributor here, has been named head of the newly incorporated Auburn Spokane Company, and new quarters have been opened at Sprague and Adams Street, from which point cars will be distributed to all points in the Inland Empire.

### Get Chandler Franchise

SEATTLE, Wash., April 30.—Dunn Motors, Inc., formerly selling Willys-Knight and Overland cars in Seattle, has been appointed Chandler distributor for Western Washington.

## Making the Lacquering Outfit Do Double Duty at Jackson Street Garage in Dallas

### Ladies Let Us Lacquer Your shoes



Lacquered Shoes—in bright colors are all the rage. And just to show the ladies we are right up to the minute we are now Lacquering Shoes at 50 cents a pair.

We use the spray system—this insures a smooth even finish.

So ladies just drive

in and bring your shoes along. We can Lacquer them while you wait if you say so.

Yes, Mam, we can certainly make Wild Oscars out of old Brogans—you choose the color and we'll do the rest.

—50c—

### "Doc" Jackson's Jackson Street Garage

*And here is a specimen of the advertisements being used by the proprietor to draw the shoe-refinishing business*

DALLAS, Texas, April 30.—A garage should see its duty and do it, says the Jackson Street Garage of Dallas, one of the largest independent garages in the Southwest. For that reason C. E. Swalwell, proprietor, has taken on a sideline which is making women happy and putting more shekels in the concern's coffers. The Jackson Street Garage is lacquering shoes at 50 cents per pair. Just read the ad reproduced above.

Mr. Swalwell has been advertising his "shoe shine" business in the daily

papers and the women are just driving by the garage and having their shoes "lacquered while they wait."

Incidentally they may buy, and often do, some oil or gas for the car, or have the old buggy cleaned up while they "shop about" then return for the car and the "new kicks."

This is the first garage in this section of the country to announce it is in the shoe lacquering business. It is using the same machine used in spraying the finish on automobiles.

### Gill Having Greatest Volume

CHICAGO, April 30.—Although running two shifts for many weeks past, Gill Manufacturing Co., Chicago, has been forced to add a third shift to handle the greatest volume of sales in

its history. Increased volume from old accounts plus the demand for more than 50 new distributors closed since January 1 will probably force maintenance of this basis of three shifts for entire spring and summer season.



## Kelsey-Hayes Union Now Up to the Stockholders

**Directors of Both Concerns Have Acted Favorably on Merger Project**

DETROIT, April 30.—Directors of both the Kelsey Wheel Corporation and the Hayes Wheel Company have acted favorably on merging the two companies into the Kelsey-Hayes Wheel Corporation and the next step will be for the two companies to put the proposition up to their shareholders, Mr. G. W. Kennedy, president of Kelsey, told the Chilton Class Journal Company.

The Kelsey company, organized under the laws of New York, will change its capital stock and name as a means of absorbing Hayes. The new company will have 400,000 shares. Present Kelsey shareholders will receive for each share of Kelsey three shares of the new stock, while Hayes stockholders will be given \$15 cash and one-half share of the new for each share of Hayes. This means that approximately 98,000 shares of stock and \$3,000,000 in cash will be required to absorb Hayes holdings.

Kelsey shareholders will meet May 26th, to act on the plan, while Hayes stockholders will meet at Jackson May 23, for similar action. Upon favorable decision of the stockholders the amalgamation of the two companies will be completed about June 1st.

Asked what effect the merger would have in the personnel of the two companies, Mr. Kennedy declined to make a statement at this time further than to say that there is no intention of making any changes in the personnel of the Kelsey organization. The detail of rearranging the personnel of the amalgamated companies is a matter which will probably require several months time to complete.

### Move N. Y. Bosch Home

NEW YORK, April 30.—The New York home of the Robert Bosch Magneto Co., Inc., will be removed May 1 from 123 W. 64th st. to the new Robert Bosch building at Queens boulevard and Buckley st., Long Island City.

### Stock Dividend by Federal

DETROIT, April 30.—Federal Motor Truck Company has declared a stock dividend of 2½ per cent payable July 5th, and the regular quarterly cash dividend of 20 cents payable July 1st.

### Larger Home for Niehoff

CHICAGO, May 2.—C. E. Niehoff Co., manufacturers of electrical specialties, have acquired larger quarters to care for manufacturing, assembling and general automotive electric service. The new location is 230 W. Superior St., Chicago.

*Is Advanced by Buick to Higher Executiveship*



Arthur J. Sarvis

As announced in a previous issue of MOTOR AGE Arthur H. Sarvis has been elevated to the post of assistant general sales manager by the Buick Motor Company. He stepped up to this position from the service managership. Besides his wealth of experience in service promotion and sales work Mr. Sarvis harks back to a time when he was a newspaper man—and a successful city editor.

### Better Business in Iowa

DES MOINES, Ia., April 30.—The automobile business in Iowa isn't following agriculture into a depression, according to reports of registrations for the first two months of the year, which show a total gain of 29,992 motor vehicles over the first two months of 1926.

W. M. Colladay, superintendent of the motor vehicle department of the secretary of state's office, reported a total registration on March 1 of 589,923 vehicles, represented in 544,111 automobiles, 44,532 trucks, 1147 motorcycles and 133 trailers. In 1926 the total was 559,931, including 518,870 automobiles, 39,629 trucks, 1310 motorcycles and 122 trailers.

### Verdict Favors Stutz

INDIANAPOLIS, April 30.—A verdict in favor of the defendant was returned here in the action brought by the Widley Motor Co. vs. the Stutz Motor Car Company of America, Inc., seeking to collect \$950,000. The case was heard before a jury in the court of Judge Hayes of the Marion county Superior Court and the trial lasted 10 days. The Widley company charged the Stutz company with breach of contract.

## Arrange for N.A.D.A. Meetings in California

**Gatherings at Los Angeles and San Francisco to Open Schedule**

SAN FRANCISCO, May 2.—The National Automobile Dealers' Association will hold two meetings in California in June, one at Los Angeles, and one at San Francisco, according to William L. Hughson, local Ford distributor and dealer who was elected president of the N. A. D. A. in February. The meetings will cover discussion of educational plans, servicing programs, sales methods and probably the used car situation.

Following these meetings two members of the national committee of the N. A. D. A. will remain on the coast to conduct meetings for dealers in Sacramento, Stockton, Fresno, Bakersfield, San Bernardino, Santa Ana, San Diego, Riverside, and others of the smaller cities.

Mr. Hughson has issued an appeal for greater membership in the national dealers' organization by men in the industry on the Pacific coast.

### Butler Buys Peerless Branch

CHICAGO, April 30.—Peerless Motor Car Corporation has announced purchase of its Chicago branch by W. E. Butler, who for the past five years has been distributor here for Franklin. The new Peerless company headed by Mr. Butler will be known as Butler Motors, Inc., with show rooms, service station and executive offices at 2251 S. Michigan Boulevard. The company will maintain branches on Broadway and in Evanston. Mr. Butler is well known in Chicago and Illinois automobile circles, and active in association work. The Franklin distributorship here has been taken over by the L. Markle Co., 2309 S. Michigan Boulevard.

### New Pontiac Delivery Chassis

PONTIAC, Mich., April 30.—The Oakland Motor Car announces the Pontiac Six DeLuxe delivery chassis, without body, in addition to the two models, with screen and panel bodies, already introduced. While the screen and panel body types meet most business requirements, certain lines need other types of bodies, and it is to such users that the chassis is offered. The Pontiac delivery chassis will sell for \$585 f.o.b. Pontiac.

### Dealers Oppose Driver's License

PEORIA, Ill., April 30.—In a referendum conducted by the Illinois Automotive Trade Association automotive dealers of the state recently voted ten to one against a proposed driver's license law. In asking the dealers to vote on this subject the association sent out a circular containing comprehensive arguments for and against the proposition.

## Plan One Company for Miniger Battery Plants

### U. S. L. and Prest-O-Lite Factories Both Under Toledoan's Control

TOLEDO, April 30.—Operation of the United States Light & Heat Corp. and Prest-O-Lite Battery plants, both now controlled by C. C. Miniger, of Toledo, president of the Electric Auto-Lite Corp., will be continued for some time as at present—offered by the same executives and putting out the same products under the same trade names.

The deal, however, will bring the two units of the automobile battery business into one company, the U. S. L. Battery Corp., The Automotive Battery Corp., which is being merged with U. S. L. at the present time, will lose its identity after exchange of securities. To bring about the merger U. S. L. interests acquired substantially all stock of the Prest-O-Lite Co., Inc., from the Union Carbide & Carbon Corp. U. S. L. stockholders will receive in effect a stock dividend of 50 per cent and an extra cash dividend of \$1.

The consideration for the purchase included payment of \$800,000 in cash, purchase of inventory items of more than \$1,500,000, collection of certain accounts of more than \$700,000 and fulfillment of a lease carrying a rental charge of \$85,000 a year for five years, beginning May 1.

The new U. S. L. Battery Corp. will have a capitalization of 80,000 shares of cumulative 10 per cent \$10 par preferred A stock; 420,000 shares of cumulative 7 per cent \$10 par preferred B stock, and 160,000 shares of no par common stock. The 80,000 shares of new preferred A stock would be exchanged for a like amount of U. S. L. preferred A stock outstanding, the remaining 635 shares of present preferred A to be retired. Of the new preferred B cumulative stock, 300,000 shares would be exchanged for a like amount of non-cumulative preferred B stock outstanding, the remaining 120,000 shares to be issued later, possibly for redemption of preferred A stock. Of the 160,000 new shares of common, 120,000 shares would be exchanged for the 80,000 shares of present common outstanding, on the basis of one and one-half for one. The remaining 40,000 shares would be exchanged for the 40,000 shares of Automotive Battery Corp. stock. Two cash dividends on the old U. S. L. common stock, 50 cents each on July 1 and Oct. 1, will be prepaid at the time of the merger.

Announcement was made by the Prest-O-Lite Co. of the sale of the storage battery branch at Indianapolis of its business to the new company, but said it will continue the manufacture and sale of acetylene gas, gas

### On Year's Foreign Tour for Black & Decker Co.



Atherton Clark

Close cooperation with the jobber has been a big element in the policy of the Black & Decker Company's domestic business and its domestic sales organization has devoted much intensive effort to this end. In line with the company's desire to extend this same service to foreign distributors Atherton Clark, of the export department now is on a year's trip that will take him to a number of distant countries. He arrived in Australia April 21 where he has been giving pointers to salesmen on Black & Decker tools and where he will render much assistance to distributors similar to that being given distributors here by the domestic sales force.

cylinders, acetylene generators and other apparatus.

Officers of the Prest-O-Lite Storage Battery Corp., the U. S. L. subsidiary taking over the Prest-O-Lite battery operations, are: Vice-president and general manager, J. H. McDuffee; secretary-treasurer, J. B. Mottley; sales manager, C. L. Myers; factory superintendent, Clarence Olds.

### Take Over Chrysler Line

NASHVILLE, Tenn., April 30.—The Mosley Motor Co., Inc., has been organized here with \$85,000 capital, and has taken over the agency for the Chrysler line from the Hermitage Motor Co., it is announced by William H. Mosley, head of the former company, who was formerly a Ford and Lincoln dealer at Springfield, Ill. A. L. Lewis, president of the Hermitage company, states this firm has taken over the agency of the Oldsmobile in the Nashville district.

## Gas 15 Cents a Gallon in California Price War

### Severe Competition Forced Slashing Declares Oil Company Statement

SAN FRANCISCO, April 30.—Fifteen-cent gasoline throughout California is the result of a price war. This includes the tax, and the price rules for the Richfield, Standard, California, Petroleum, Pan-American, Shell and General Petroleum companies. Union and Associated companies have stood pat on the previous price of 17 cents, tax included. Both announced that there would be no "immediate reduction."

Pan-American opened the hostilities, which, for several days following the middle of April, were confined to southern California. Then the Richfield Oil Company extended the scope of its price-cut to include San Francisco territory, and the others followed. The Pan-American is E. L. Doheny's company. Price to the service stations is 12½ cents, with the tax absorbed. Some independent stations handling inferior grades have been advertising their gasoline for sale at 10½ cents a gallon.

Announcing the reduction, the Richfield Oil Company said:

"The price cut has not been brought about so much through economic pressure as because of a severely competitive situation. As usual, the southern California market has been selected as the battle ground for gasoline price wars. In view of the fact that a much larger percentage of our gallonage is sold in this territory than is the case with any other major distributor, it appears only reasonable to make the cut state-wide, so that all the marketing companies may participate equally in the sacrifice involved in reducing the market price below economic levels."

### Gas Down to 15 Cents at Denver

DENVER, Colo., April 30.—As a result of a gasoline dealers' "war" gasoline dropped here to 15 cents, the lowest price since 1923. It sold for 23 cents all winter. With an increased state tax from two to three cents effective May 1 the price to motorists will be boosted at least to 16 cents.

### Heads A.A.A. Group

WASHINGTON, April 30.—Stanley Horner, Washington retail distributor for Buick and president of the Washington Automotive Trade Association, was elected chairman of the District division of the advisory board of the American Automobile Association. Walter B. Guy was elected secretary and George W. Offutt and C. P. Clark delegates to the local traffic council. The Washington division now has 12,000 members, it was reported.



## Many New Facilities Are Ready for Dealers and Salesmen at General Motors Proving Ground

DETROIT, April 30.—New facilities designed especially for the sales departments of the various General Motors Divisions have been completed at the proving grounds near Milford and will be placed in operation next week.

A large building containing an auditorium with seats for 700, a dining room capable of taking care of over 300 at one meal and attractive lounges have been provided. A feature of the auditorium is the stage which has a turntable designed so that an automobile can be displayed to a dealer gathering from all angles.

Since the proving ground was opened there has been an increasing demand for its use for demonstrations to deal-

ers and salesmen and this activity became so important that it was decided to provide the new facilities so that this work could be enlarged and at the same time not interfere with the scientific tests which are being made continuously by the corporation.

The new speed loop of concrete and gravel over three miles in length will be completed in ten days. It is claimed that this is one of the fastest speedways in the world. Yesterday a stripped LaSalle roadster demonstrated the speed possibilities of the corporation's new track by going into the high banked turns at a speed exceeding 100 miles an hour.

### Sales Above Average

SAN FRANCISCO, April 30.—The Pacific coast, in spite of unusually heavy rainfall within the past three months, is absorbing more cars than any other equal area and population of the country, according to executives of the Buick Motor Company, who arrived here late in April. E. J. Poag and E. N. Steger, of the Buick corporation, spent several days here in conference with P. S. Steenstrup, Pacific coast district sales manager for Buick, and R. F. Thompson, general manager, and Eaton McMillan, sales manager, of the Howard Automobile Company, Buick distributors for California. Buick production is 20,000 cars ahead of the best previous record at the same date of any year, according to Mr. Poag, and the Pacific coast is absorbing more than its average share of this production. Business conditions in northern and central California are considered of the best by both Buick executives, who are on their second swing over the country.

### Hold Meeting for Dealers

BIRMINGHAM, Ala., April 30.—The Hammond Motor Car Company, distributor of the Chrysler car for North Alabama, recently was host to dealers of its district at the Tutwiler Hotel, holding a special sales promotion session throughout the day. A large crowd of dealers, salesmen and service managers attended the meeting.

The feature of the meeting was an address by Henry T. Myers, district sales manager of the Chrysler Motor Corp., who was guest of the Hammond Company at the time.

### Tractor Business Slower

ATLANTA, May 2.—Atlanta distributors of tractors and power farming equipment say sales for the first quarter in the Southeast were not only less than the first quarter in 1926, but below the normal level, due to adverse conditions affecting both industry and agriculture. In the agricultural field sales

appear to have been particularly slow. Industrial sales of tractors also were below last year's level, but on the other hand were practically normal as the business in this district last year was unusually brisk.

### Directing Olds Strategy In Lansing Zone



F. Q. Murphy

Oldsmobile dealers in Michigan are well acquainted with F. Q. Murphy who has done a lot of promotional work for Olds in that state. He has been factory representative in the Lansing Zone, assistant zone manager, and recently D. S. Eddins, vice-president and general sales manager for Olds Motor Works, announced that Mr. Murphy had been appointed manager of the Lansing branch.

## Regional Meetings to Be Sponsored by M.&A.M.A.

### Directors Vote for Series of Conferences Similar to Those in 1926

NEW YORK, April 30.—The board of directors of the Motor Accessory Manufacturers' Association has voted to hold a series of regional conferences with members similar to those held last year.

The first of the meetings will be held May 19 in Cleveland, the second the day following in Detroit and the third and last May 26 in New York City.

In general the program to be followed will be similar to those of the former meetings which brought about a notable interchange of views by the members on important problems of the parts, accessory and service equipment business. The directors and staff will attend the regional conferences and it is probable that some of the members will be invited to give brief talks.

### Republic Opens New Zone

DETROIT, April 30.—The territorial sales organization of the Republic Truck Sales Corporation of Alma, Mich., has been materially strengthened and expanded with the opening up of a new Northwest and Southwest zone which will have charge of sales in the states lying west of the Rocky Mountains as well as in British Columbia.

R. H. Spencer of Los Angeles, has been named Southwest manager and Mr. T. M. House Northwest manager. The former's territory includes the states of California, Arizona, New Mexico and Nevada, while Mr. House's territory will embrace Washington, Oregon, Idaho, Montana, Utah and Wyoming and the province of British Columbia. Both men have had considerable experience with Republic as sales executives, Mr. Spencer having filled a similar position on the Pacific coast, while Mr. House has served both as manager of the Eastern zone and general sales manager at the factory.

### Kill Gas Tax Increase Bill

ST. PAUL, Minn., April 30.—The Minnesota legislature voted down a bill to increase the tax on gasoline from 2 to 3 cents as recommended by Highway Commissioner C. M. Babcock.

A reciprocity act was passed for vehicles in interstate traffic by which any person living within 25 miles of the Minnesota line for \$1 may get a permit from secretary of state to operate a truck or commercial passenger car across the line to within 25 miles of the border, where similar privileges are extended to Minnesota citizens by other states. Passenger cars if licensed in other state may use the Minnesota roads for 10 days without permit and 60 days on a visitor's permit from the secretary of state, as heretofore.



## Declare G.M. Building in Detroit Is Not for Sale

### Corporation Nails Rumor of Negotiations for New Ownership

DETROIT, May 2.—The General Motors Building Corporation set at rest persistent rumors to the effect that the General Motors Building in Detroit is to change ownership. It was also stated that in the past 12 months the increase in occupied floor space has totaled 14 per cent and that the building is now within 4 per cent of normal full capacity.

General Motors Corporation is not now and has not been at any time negotiating for the sale of the building, it was declared, nor would the corporation be interested in any project that would involve removal of any of the departments of the corporation from the building. It was also declared that General Motors is not financially interested in any other office building in the City of Detroit.

Practically all major operations of General Motors are now housed in the building, occupying more than 50 per cent of the space. The research laboratories, formerly located at Dayton, have been moved to Detroit and occupy all the space in a section of the building specially designed for the purpose. The General Motors Acceptance Corporation recently moved into larger quarters in the building and The Yellow Truck & Coach Manufacturing Co. has established executive offices in the building.

### Slower Sales First 2 Months

DETROIT, April 30.—According to figures compiled by the Michigan Automotive Trade Association, 9690 new automobiles were titled in Michigan in February compared with 10,865 in February, 1926. The sale of cars for the first two months of the year aggregated 17,184 compared with 19,177 for the same period last year.

The figures reveal that Ford's business in Michigan dropped off nearly half while Chevrolet nearly doubled its business. Essex was another of the popular priced cars to nearly double its business compared with last year.

### March 1927 Runs Ahead

MILWAUKEE, Wis., April 30.—Official figures covering new car sales in Wisconsin during March reveal a most gratifying situation. Total sales of passenger cars were 8,164, compared with 7,161 in March, 1926, an increase of 1,003 cars, or 14.6 per cent.

At the same time, motor truck sales were 1,319, compared with 818 a year ago, a gain of 501, or nearly 31 per cent.

The significant feature of the passenger car report is that nearly every make showed an increase over a year

ago. As in January and February, Ford sales declined materially, while Chevrolet made a substantial gain. Essex made probably the heaviest gain outside of Chevrolet, sales being 743 against 348 a year ago.

### More Fatalities as Year Starts

NEW YORK, April 30.—Fatal accidents in cities of more than 100,000 population the first two months of 1927 totaled 876 against 741 in the corresponding period a year ago, a gain of 18 per cent, according to figures gathered by the National Automobile Chamber of Commerce.

The figures may or may not be an index of the trend for the year, the Chamber points out, since weather conditions have a marked effect on totals. During the winter months the 1926 totals were very low during the winter but the year showed an increase.

### Dealers Re-elect R. G. Coon

SIoux FALLS, S. D., April 30.—R. G. Coon has been re-elected president of the Sioux Falls Automobile Association. A. C. Stuebing succeeds W. K. Rierdon as vice-president. W. K. Rierdon succeeds E. J. Wintersteen as treasurer. DeWalt T. Kieffer was re-elected secretary. The directors elected are: R. R. Williams of the Williams-Bergh Co., E. J. Wintersteen of the Wintersteen-Chevrolet Co., R. G. Coon of the Coon Auto Co., W. K. Rierdon of the Rierdon Motor Co., A. C. Stuebing of the Thompson Motor Co.

### Launch Chevrolet Dealership

DAYTON, O., April 30.—The Wayne Avenue Chevrolet Company has been organized here to sell the Chevrolet line and maintain servicing and parts departments. The company will handle both Chevrolet cars and trucks. There will be two show rooms at 727-735 Wayne avenue, one for new cars and one for used cars. Ralph W. Boone is vice-president and general manager of the new company and Roger H. Patton general sales manager. The used car manager will be Russell Teague, while Orlo Shupp will be service manager and Schulze Nafe parts manager.

### Tractors on 7.9 Per Cent of Farms

WASHINGTON, April 30.—Approximately 7.9 per cent of the farms of the United States have tractors on them, according to preliminary farm census figures for 1925, just announced by the U. S. Census Bureau. There are 6,371,640 farms and of this number 505,933 own one or more tractors, the figures show.

The farm population is given as 28,981,693, compared with 31,614,269 in 1920. As a whole the farms are mortgaged for 41.9 per cent of their value. The need of adequate highways is indicated by the census which shows that slightly less than half of the farms are on unimproved roads.

## Oregon to Require \$1000 Bonds of Car Merchants

### Title to Car or Truck Is Held by Legal Owner Under New Law

PORTLAND, Ore., April 30.—Beginning July 1, 1927, every automobile dealer in Oregon must post a bond of \$1,000 with the secretary of state, according to a digest of the recent automotive activities of the Oregon state legislature. This bond will be held for six months after the dealer loses his license or retires from business.

On and after the same date, dealers must pay a \$3 license fee, and, after January 1, 1928, \$5 annually so long as they remain in business. The light law was amended to permit the use of 32-candlepower globes in headlights, spotlights and auxiliary lights. Dimming of lights on wet pavement and in mountain driving remains compulsory; headlight inspection and service stations are put under state regulation and control; spotlights may be movable so long as the beam is kept to the right of the road and not more than 100 feet in front of the car.

The title law was amended to provide that the title to an automobile or truck remains in the hands of the legal owner, while the registered owner must display a registration certificate in a prominent place on the car. Garagemen are ordered, under penalty, to report immediately any and every car which appears to have been in an accident, or which has bullet holes in it. The speed law was increased from 30 to 35 miles an hour, and this applies also to all trucks which have pneumatic tires and which operate without trailers.

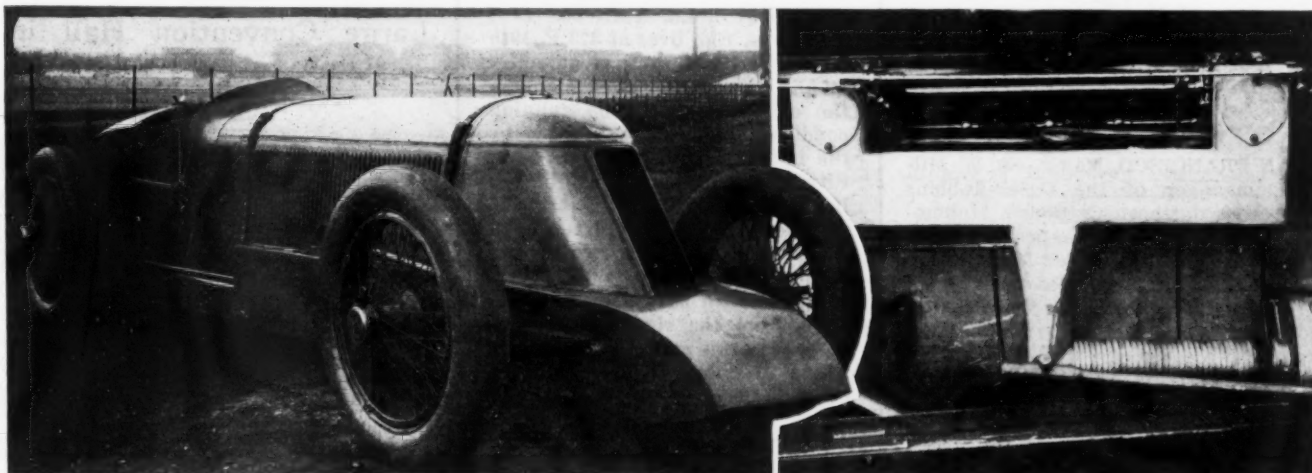
### Name Mortimore President

ROCHESTER, N. Y., April 30.—G. Norton Mortimore, head of the Mortimore Motor Car Company, Nash distributor, was elected president of the Rochester Automobile Dealers' Association at the annual meeting. Other officers elected were: Vice-President, E. J. Horton, Dodge distributor; secretary, George Wyman, Mabbett Motor Company, Cadillac distributor; treasurer, J. E. Hansen, Packard Rochester Motors, Packard distributor.

Directors were named as follows: R. S. Cunningham, Cunningham-Joyce Corporation, Chevrolet dealer; James J. Williams, J. J. Williams Company, Hupmobile distributor; Charles P. Gallagher, Studebaker distributor. Robert J. Menzie was retained as executive secretary.

Reports of the retiring officers showed the finances of the association in excellent condition. Retiring president James J. Williams received a vote of appreciation for the excellent work he accomplished during his term of office.

## Marchand in Straight Eight Voisin Topples Two Eldridge Records



Left—Voisin straight eight sleeve valve car which set new records recently on Montlhery track. Right—Showing unusual air manifold used on record-breaking Voisin

PARIS, April 18—(By Mail)—Driving a straight eight sleeve valve Voisin having a piston displacement of 484 cubic inches, on Montlhery track, Marchand broke two world's records for respectively 100 kilometres and 100 miles, having been held since last December by E. A. Eldridge on a 91½ in. straight eight Miller.

The French car covered the 100 kilometres in 29 min. 13 8/100 sec. or an average of 127.54 miles an hour and was clocked in 46 min. 40 41/100 sec. for the 100 miles, thus maintaining an average of 128.54 miles an hour. Continuing with the object of getting the world's hour record, the driver was ordered to stop ten minutes before the end, when it was seen that one of the rear tires was wearing badly. In accordance with the international rules, these records were made with a standing start.

The Voisin used for this record performance is a special car, for the firm does not build an eight cylinder model. The cylinder size, however, namely 95 by 140 mm., is the same as that of the Voisin big four cylinder. To get better balance on the track, the engine is offset in the frame nearly five inches and a low center of gravity is obtained by mounting both front and rear axles above the frame members.

Engine construction follows Voisin practice in treating the Knight and although dry sump lubrication is used, this also is in accordance with the firm's standard practice. The whole of the space between left and right of the base chamber is occupied by an oil radiator with ribbed aluminum tubes, the oil passing through this to the tank in the tail of the machine. Ignition is by Delco generator and distributor.

An unusual feature is the system of admitting air to the carburetors. Two

Zeniths are bolted up direct to the cylinder block. Attached to them is an air manifold consisting of two vertical leads from a horizontal pipe and a vertical pipe joining the center of the horizontal pipe and having a Protectomotor air filter on its mouth. There is a small copper pipe from one end of the air manifold to drain off any gas which may accumulate from the carburetors. It is claimed that without this air manifold the mixture was likely to be upset by the powerful air currents met at high speeds.

This car had originally been fitted with the Cotal planetary, magnetic control transmission, but for the speed tests this was taken out and the runs made with high only. The rear axle is normal type with a differential. Track front and rear is 59 inches. With full equipment and driver aboard, the Voisin weighs slightly less than 3,000 lbs.

### Obtain Chandler Franchise

SEATTLE, Wash., April 30.—Dunn Motors, Inc., formerly Willys-Overland dealers of Seattle, have taken over the distribution in Western Washington of the Chandler motor cars. The company recently moved into its new building at 501-9 East Pike Street. C. M. Dunn is president, P. N. Irwin, manager, and M. G. Jones is sales manager.

### Take Falcon Territory

MINNEAPOLIS, April 30.—Gandelot-Fraser, Inc., will distribute the Falcon-Knight car in the Twin Cities and 68 counties in Minnesota and Wisconsin. The company supersedes Howard K. Gandelot, Inc., which distributed Rickenbacker. J. Frank Fraser, formerly grain commission merchant, is president and treasurer. Mr. Gandelot is secretary and vice-president. R. P. Baker, formerly with Willys-Overland,

Inc., is wholesale manager. Before moving to Minneapolis a year ago Mr. Gandelot was sales and experimental engineer with the Rickenbacker company.

### Represents Jordan

WORCESTER, Mass., May 2.—The Jordan Worcester Company, 246 Park Street, has been made a direct factory distributor for the Jordan line. The company was reorganized recently and R. V. Lowe, general manager, was made president.

### Making Garage Tools

MINNEAPOLIS, April 30.—The Vim Tool Co. has started operating at 501 Seventh St., S., Minneapolis, with \$50,000 capital, making garage tools. G. K. Vinnicum is president, A. E. Hellickson vice-president, S. B. Hellickson secretary and treasurer.

### I. C. Jones Now Distributor

NEW YORK, May 2.—I. C. Jones, formerly wholesale branch manager of the Studebaker Corporation of America in New York, has resigned to become a distributor for a large section of New Jersey. His successor in New York is W. K. Erdman, formerly wholesale branch manager for the Philadelphia district.

### Auburn Dines Distributor

BOSTON, May 2.—The Auburn Automobile Company staged an innovation here when it gave a complimentary dinner to F. A. Hinchcliffe at the Boston Athletic Association to celebrate his becoming New England distributor of the line. Vice-President Roy Faulkner came here for the occasion, and he had about 100 Auburn dealers present to welcome the man under whom they would work from now on.



## Milburn Is Elected Head Of Frisco's Dealer Body

Former Chief of Downtown Association Succeeds Chester N. Weaver

SAN FRANCISCO, May 2.—E. W. Milburn, manager of the Greer-Robbins Company's northern California Hupmobile organization, has been elected president of the Motor Car Dealers' Association of San Francisco.

Paul Kleiber, president of the Kleiber Motor Car Company, local manufacturers of the Kleiber car, was chosen vice-president; Fred W. Pabst, general manager for Don Lee, Inc., Cadillac distributor for California, secretary; A. D. Plughoff, treasurer, and the association named the following executive board: Chester N. Weaver, chairman; W. E. Farr, W. F. Culberson, Carl Simpson, Harry B. Morrill, J. E. French, W. L. Hughson, Calvin Eib, Roy Alexander, W. E. Taylor, and Roy Butler.

Arthur D'Ettel was elected business manager of the association, and George Wahlgreen again named show manager. Mr. Milburn, who is widely known in automotive merchandising circles throughout California, was for two years head of the San Francisco Downtown Association, and succeeds Chester N. Weaver as president of the automobile dealers' organization.

### Show at Corpus Christi

CORPUS CHRISTI, Texas, April 30.—The Corpus Christi Automotive Trades Association will hold its first annual automobile show May 5, 6 and 7, according to Frank Williamson, president of the organization.

All the new models will be on display Mr. Williamson said. The entertainment program consists of music and dancing. The show will be held in the New Ports building, one of the largest structures in the city and one which is convenient to the business district.

All Corpus Christi dealers are participating in the show. The jobbers and the branch houses serving Southwest Texas are cooperating.

### Heads Association Branch

SAN FRANCISCO, Cal., April 30.—Harvey Crane, of the J. W. Leavitt Company, has been elected chairman of the Accessory Buyers' Division of the Motor Car Dealers' Association of San Francisco. L. Winchell, of the Chandler Motor Car Company, was chosen secretary.

### Equipment Dealers Meet

ABILENE, Texas, May 2.—More than 300 automobile equipment dealers from West Texas attended the second annual convention of the West Texas organization here recently. The meeting was one of several which is being held in various sections of the state for the

## Iowa Owner's Ancient Car Still Runs

DUBUQUE, Ia., April 30.—Bert Frentress, who lives at 373 E. 19th Street in Dubuque, has an automobile which he believes is among the oldest still in good running condition. This car was made by the Upton Machine Co., New York City, and has on it a Chicago license dated 1904. It has a one cylinder engine, chain drive, open differential and a two-speed planetary transmission. It is equipped with 26x2½ in. tires cemented on the rims. Mr. Frentress says this car will travel only about 10 miles an hour in high gear.

purpose of considering better merchandising methods. The jobbers had as their guests the dealers from all sections of the territory.

Buying, selling, stocking, accounting, credits, discounts, advertising and training men were among the subjects considered at the meeting. The matter of car dealers selling more accessories and tires was stressed. One of the chief speakers was George Brusch, representing the Automotive Equipment Association.

### Used Car Managers Elect

SEATTLE, Wash., May 2.—The Used Car Managers' Association of Seattle at its annual meeting elected the following new officers: President, Jack Thornton, Oldsmobile Motor Company; vice-president, L. R. Pittmon, of Pittmon & Gamlin, Pontiac dealers; treasurer, Max Whitcomb of Packard Seattle Company; secretary Harvey Goodrich, publisher of appraisal book. The new executive committee is composed of George Benning of C. H. Wells, Inc.; Fred Marcure of Dunn Motors, Inc.; W. S. Lawrence of Washburn-Haines Company and Roy Wells of William O. McKay company.

## NEW Automotive Literature

BUILDING A PROFITABLE BATTERY & ELECTRICAL BUSINESS. This book treats in an unusually comprehensive manner every phase of the battery and electrical business. It has 27 chapters devoted to practical methods and suggestions, starting with the actual founding of a business and proceeding through the various steps of production and profit-making efficiency. The book is really a cross section of the composite business of more than 200 dealers who were interviewed in the process of preparation of the book. It is published by the Battelle Publishing Co., 317 Central Ave., Los Angeles, Cal.

## N.S.P.A. Will Hold Its 1927 Show in Cleveland

Large Convention Hall in Ohio City Promises Ample Facilities

DETROIT, April 30.—The National Standard Parts Association has decided to hold its 1927 show in Cleveland the week of November 14, which follows immediately the close of the A. E. A. show in Chicago. E. P. Chalfant, executive vice-president, has announced.

The show committee of the N. S. P. A. recommended that the next exhibit be held in Cleveland, and, after investigation, the matter was acted upon favorably by the executives.

The show will be held in Cleveland's spacious Convention Hall. The management of the hall has tendered every facility to the association, and, with ample space assured, plans are under way to prepare the greatest show in the history of the N. S. P. A.

An experienced show manager has already been retained to arrange all details.

This will be the third annual show of the association, both the exhibits of 1925 and 1926 being held in Chicago.

### To Organize at Houston

HOUSTON, Texas, April 30.—Plans for the organization of a Houston Automobile Dealers Association are under way. It is expected the association will be perfected in the near future with practically every retail automobile dealer in the city a member. Eighteen of the leading dealers of the city have already pledged their cooperation in the plans for organization.

The Houston Auto Trades Association was discontinued in 1922. Since that time the dealers of the city have not been connected with any central organization. The movement for the formation of the association was started by H. S. Allen, general manager of the Willys-Overland Sales Company, and Carl S. Jay, manager of the factory branch of the Reo Company.

### Annual Meeting at Worcester

WORCESTER, MASS., April 23.—At the annual meeting of the Worcester Automotive Association the following officers were elected for the next fiscal year: President, W. T. McOwen, Reo-Worcester Co.; vice-president, Frank Kenney, Marmon and Auburn; secretary-treasurer, W. R. Livingstone.

The executive program has been entrusted to a committee composed of H. B. Chase, Dodge Brothers dealer, chairman; R. B. Lowe, Jordan; C. M. Stanley, Buick; A. N. Davis, Packard, and J. C. Harvey, Peerless.

Secretary Livingstone was honored by the association in recognition of his 10 years' service.

## Southern Pacific Plans Extensive Stage System

### Buses Are to Be Used at Many Points on Rail Company's Lines

SAN FRANCISCO, April 30.—The Southern Pacific Company has entered the field of motor stage transportation with the filing of articles of incorporation with the secretary of state of California for the Southern Pacific Motor Transport Company, a corporation.

The new company, while it will be owned by the Southern Pacific Railroad Company, will operate as a separate concern and will have different officials. Its headquarters will be in San Francisco. The articles of incorporation provide for the operation of the Southern Pacific Motor Transport Company both inside and outside California, wherever the Southern Pacific Railroad operates. According to officials of the railroad corporation, the new stage company will be operating throughout the state, and probably in all states of the Pacific Slope traversed by the Southern Pacific, in three months.

According to this statement, the principal object of the new stage service is to supplement rail service. In sections where rail service is infrequent, because the number of passengers does not warrant frequent trains, the stage service will be used as a feeder to the main lines. It is understood that much of the necessary equipment has been assembled for operation within California.

Covering the reason for the formation of the stage corporation, Paul Shoup, executive vice-president of the Southern Pacific Company, issued the following statement:

"The competition of privately-owned machines and of motor-bus companies in connection with the construction of good highways in the territory served by this company has so decreased the earnings from certain trains, especially those engaged in branch-line service, as to necessitate the taking off of these trains.

"It is desirable, wherever practicable, that the gap thus created be filled by dependable motor bus service. In many instances, this can be accomplished with the lesser operating costs of the motor bus compared with the train."

#### Brake Tests Yield Shop Work

HARTFORD, Conn., April 30.—Hartford police have begun their spring brake testing campaign and car owners never know in which quarter of the city they will work next. As a result the service stations are receiving much brake relining work. It is interesting to note that brake tests were never held by the local police until an ambitious salesman for a brake lining house sold the department on the idea.

## Coming Motor Events

### Automobile Shows

Chicago.....Nov. 7-12  
Exposition, Coliseum, Automotive Equipment Association.  
Cleveland.....Nov. 14-19  
Convention Hall, National Standard Parts Association.  
Green Bay, Wis.....Aug. 29-Sept. 2  
Auto Building

### Races

A. A. A.

Altoona, Pa.....June 11  
Altoona, Pa.....Sept. 5  
Atlantic City.....May 7  
Atlantic City.....Sept. 24  
Charlotte, N. C.....July 11  
Detroit.....Sept. 10  
Indianapolis.....May 30  
Los Angeles.....Nov. 27  
Salem, N. H.....June 25  
Salem, N. H.....Oct. 12  
Syracuse, N. Y.....Sept. 3

### Conventions

American Automobile Association, Annual Meeting, Ritz-Carlton Hotel, Philadelphia.....June 16-17  
Associated Automotive Engine Rebuilders, Hotel Winton, Cleveland.....May 26-28  
Automotive Equipment Association, Summer Convention, Multnomah Hotel, Portland, Ore.....June 27-July 2  
Automotive Equipment Association, Coliseum, Chicago.....Nov. 7-12  
National Association of Automobile Show and Association Managers, Drake Hotel, Chicago.....July 26-27  
National Automobile Chamber of Commerce, Annual Meeting, New York.....June 3  
North Carolina Automotive Trade Association, Morehead Villa, Moorehead City, N. C.....August 15-16

S. A. E.

French Lick Spring, Ind., May 25-28—Summer Meeting.

### COMING FEATURE ISSUES OF CHILTON CLASS JOURNAL PUBLICATIONS

June 4—Automotive Industries—Engineering Number  
June 10—Motor World Wholesale—A. E. A. Summer Meeting Number

Now it has become a regular thing. Inspections are scheduled for various seasons through the driving weather. That the provision has had its good effects is obvious.

#### Olds Retail Branch for Memphis

MEMPHIS, Tenn., April 30.—A new Oldsmobile factory branch retail store in Memphis is announced by Oldsmobile officials. The company has purchased the business formerly operated by the George S. Danaher Company, and in the future Oldsmobile retail activities will be centered in the factory branch building, 1071-77 Union avenue. The branch building is being remodeled to provide greater facilities for retail sales and service.

Roger G. Jones has been appointed manager of the retail division. Mr. Jones has had extensive experience in the automobile business. Since his association with Olds Motor Works, Mr. Jones has been engaged in sales promotion work in connection with the Oldsmobile section of the General Motors permanent exhibit at Atlantic City.

#### Discuss Overland Sales

FORT DODGE, Ia., April 30.—Thirty district distributors of Willys-Knight and Overland cars gathered at the Wahkonas hotel from the northwestern Iowa district for sales and promotion conference meeting. M. M. Hamilton, manager of the Des Moines branch; E. G. Jamieson, wholesale manager; D. E. Goddard, sales promotion manager, and H. Clark, manager of parts and service, were principal speakers. L. B. Bentley, district representative, was host at the luncheon to the visitors.

#### Heavy Grade Crossing Toll

WASHINGTON, April 30.—One motorist out of every 9000 registered in the United States lost his life in a grade crossing accident during 1925, it was reported here by the American Automobile Association. This compares with one out of every 65,000 in Great Britain and one out of 45,000 in France.

The total number of grade crossing fatalities in the United States in 1925 was 2206, while there were 23 in England and 22 in France. The great disparity is due in large part to the greater degree of protection in Europe, it was reported.

Out of 232,755 grade crossings used by motorists in this country only 27,161 have any form of protection and 205,594 are entirely unguarded, or 8 per cent protected. In France 80 per cent are protected.

#### Increase C. G. Dividend

DETROIT, April 30.—C. G. Spring & Bumper Co. directors have voted to increase the regular dividend on the common stock to 20 cents quarterly. The board also voted an extra dividend of 5 cents payable May 16 to stock of record April 25.

#### Postal Receipts Show Progress

WASHINGTON, April 30.—Postal receipts for the 50 leading industrial cities continued to gain during March, indicating continued progress in industry, the Postoffice Department announced. Receipts last month were \$3,572,432.89 in the 50 cities, as compared with \$3,525,232.77 for March, 1926.



# The Automobile Dealer's

*A review of current vehicles giving  
of manufacturers, cylinder*

NAME OF CAR	MANUFACTURER		Models	Number of Cylinders and Type	PRICE RANGE	
	Name	Address			Lowest	Highest
Auburn	Auburn Automobile Co.	S. Main Street. Auburn, Ind.	6-66 8-77 8-88	6-Vert 8-Vert 8-Vert	\$1095 1395 1995	\$1345 1745 2595
Buick	Buick Motor Co.	Hamilton Avenue. Flint, Mich.	115 120 & 128	6-Vert 6-Vert	1195 1395	1375 1995
Cadillac	Cadillac Motor Car Co.	2860 Clark Avenue. Detroit, Mich.	314	8-Vee	2995	4350
Chandler	Chandler Cleveland Motors Corp.	E. 131st Street and St. Clair Avenue. Cleveland, Ohio	Big 6 Std. 6 Spec. 6 Royal St. 8	6-Vert 6-Vert 6-Vert 8-Vert	1495 945 1145 2195	1895 1135 1295 2295
Chevrolet	Chevrolet Motor Co.	General Motors Bldg. Detroit, Mich.	AA	4-Vert	525	745
Chrysler	Chrysler Corp.	341 Massachusetts Avenue. Detroit, Mich.	80 90 60 70	6-Vert 4-Vert 6-Vert 6-Vert	2495 885 1075 1395	5495 885 1245 1795
Cunningham	James Cunningham Son & Co.	13 Canal Street. Rochester, N. Y.	V-7	8-Vee	6150	8100
Dagmar	M. P. Moller Motor Car Co.	Surrey & Summit Avenue. Hagerstown, Md.	6-60 6-70	6-Vert 6-Vert	1785 3500	2445 4750
Davis	George W. Davis Motor Car Co.	1200 N. E. Street. Richmond, Ind.	92-27 94-27 Series 98	6-Vert 6-Vert 8-Vert	1395 1245 1795	1795 1385 1885
Diana	Moon Motor Car Co.	4400 N. Main Street. St. Louis, Mo.	St. 8	8-Vert	1595	5000
Dodge Brothers	Dodge Brothers	7900 Jos Campau Avenue. Detroit, Mich.		4-Vert	795	1075
duPont	duPont Motors, Inc.	Wilmington, Del.	E	6-Vert	2800	3750
Elcar	Elcar Motor Co.	700 Beardsley Avenue. Elkhart, Ind.	6-70 8-82 8-90	6-Vert 8-Vert 8-Vert	1295 1595 2195	1475 1870 2765
Erskine	Studebaker Corp. of America	Bronson and Main Streets South Bend, Ind.	6	6-Vert	945	995
Essex	Hudson Motor Car Co.	12601 E. Jefferson Avenue. Detroit, Mich.	Super Six	6-Vert	700	795
Falcon Knight	Falcon Motor Corp.	312 Majestic Bldg. Detroit, Mich.		6-Vert	995	1095
Flint	Flint Motor Co.	Elizabeth, N. J.	Z-18 60 80	6-Vert 6-Vert 6-Vert	795 1250 1450	895 1395 2050
Ford	Ford Motor Co.	N. Woodward Avenue. Detroit, Mich.	T	4-Vert	360	545
Franklin	H. H. Franklin Mfg. Co.	101 W. Marcellus Street. Syracuse, N. Y.	11-B	6-Vert	2490	3150
Gardner	Gardner Motor Co., Inc.	Main and Rutgers Streets. St. Louis, Mo.	80 90	8-Vert 8-Vert	1395 1995	1795 2295
Hudson	Hudson Motor Car Co.	12601 E. Jefferson Avenue. Detroit, Mich.	Super 6	6-Vert	1285	1850
Hupmobile	Hupp Motor Car Corp.	3501 E. Milwaukee Avenue. Detroit, Mich.	A-1 E-3	6-Vert 8-Vert	1325 1945	1385 2595
Jordan	Jordan Motor Car Co.	1054 E. 152nd Street. Cleveland, Ohio	R AA J-1	6-Vert 8-Vert 8-Vert	1595 2495 1545	1595 2495 1695
Kissel	Kissel Motor Car Co.	400 Kissel Avenue. Hartford, Wis.	6-55 8-65 8-75	6-Vert 8-Vert 8-Vert	1685 1885 2185	2295 2495 3585
LaSalle	Cadillac Motor Car Co.	2860 Clark Avenue. Detroit, Mich.		8-Vee	2495	2685
Lincoln	Ford Motor Co.	N. Woodward Avenue. Detroit, Mich.	8	8-Vee	4400	5200

(Continued from page 40)

also driving the oil pump from the lower end. By enclosing the oil pump inside the crankcase, all external oil supply lines have been eliminated. The pump itself is of the double gear type as compared with the vane type formerly used.

A further change occasioned by the

rearrangement of the various accessories is that of the steering knuckle tie rod, which formerly was offset is now carried straight across and is parallel to the front frame cross member.

In order to heat the mixture both inlet and exhaust manifolds are now mounted on the same side, with a por-

tion of the intake manifold jacketed by the exhaust manifold. Further changes in the fuel system consist of the adoption of a vertical outlet carburetor instead of the elbow outlet formerly used. The air cleaner is now mounted directly on the carburetor intake and is of the horizontal type.

# Passenger Car Directory

*makes, models, names and addresses  
types and range of prices*

NAME OF CAR	MANUFACTURER		Models	Number of Cylinders and Type	PRICE RANGE	
	Name	Address			Lowest	Highest
Locomobile.....	Locomobile of America, Inc.....	1 S. Main Street. Bridgeport, Conn.	(8-66 8-80 48 90	8-Vert 8-Vert 6-Vert 6-Vert	1785 2850 7460 5900	2550 2850 10300 7500
Marmon.....	Marmon Motor Car Co.....	1101 W. Morris Street. Indianapolis, Ind.	(Little E-75	8-Vert 6-Vert	1795 3195	3125 4175
McFarlan.....	McFarlan Motor Co.....	Mount and High Streets. Connersville, Ind.	(St. 8 TV	8-Vert 6-Vert	2650 5400	4600 9000
Moon.....	Moon Motor Car Co.....	4400 N. Main Street. St. Louis, Mo.	(Series A 6-60	6-Vert 6-Vert	1395 995	1595 1295
Nash.....	Nash Motors.....	Edward and Park Streets. Kenosha, Wis.	(Light Six Advanced Special	6-Vert 6-Vert 6-Vert	865 1115 1340	1085 1695 2090
Oakland.....	Oakland Motor Car Co.....	240 Oakland Avenue. Pontiac, Mich.	6	6-Vert	1025	1295
Oldsmobile.....	Olds Motor Works.....	Division Street. Lansing, Mich.	30E	6-Vert	875	1190
Overland.....	Willys-Overland, Inc.....	Walcott Blvd. Toledo, Ohio	(4) Whippet (6) Whippet	4-Vert 6-Vert	625 765	755 925
Packard.....	Packard Motor Car Co.....	E. Grand Blvd. and Belt Line R. R. Detroit, Mich.	6 8	6-Vert 8-Vert	2250 3750	2885 5100
Paige.....	Paige-Detroit Motor Car Co.....	W. Warren Avenue and Terminal R. R. Detroit, Mich.	(6-45 6-75 6-85 8-85	6-Vert 6-Vert 6-Vert 8-Vert	1095 1655 1395 2295	1295 2145 1495 2795
Peerless.....	Peerless Motor Car Co.....	Quincy Avenue and E. 93rd Street. Cleveland, Ohio	(6-60 6-80 8-69 6-90	6-Vee 6-Vee 8-Vee 6-Vee	1295 1995 2795 1695	1345 2995 3795 1995
Pierce Arrow.....	Pierce Arrow Motor Car Co.....	1695 Elmwood Avenue. Buffalo, N. Y.	(36 80	6-Vert 6-Vert	5875 2495	8000 4045
Pontiac.....	Oakland Motor Car Co.....	240 Oakland Avenue. Pontiac, Mich.	Six	6-Vert	775	975
Reo.....	Reo Motor Car Co.....	1331 S. Washington Avenue. Lansing, Mich.	A	6-Vert	1595	1995
Rickenbacker.....	Rickenbacker Motor Co.....	4815 Cabot Avenue. Detroit, Mich.	(6-70 8-80 8-90	6-Vert 8-Vert 8-Vert	1595 1795 2595	1645 1845 2795
Roamer.....	Roamer Motors.....	1902 Reed Street. Kalamazoo, Mich.	(8-78 8-80 8-88	8-Vert 8-Vert 8-Vert	1495 1985 2495	1795 1985 3285
Rolls Royce.....	Rolls Royce of America, Inc.....	Page Blvd. Springfield, Mass.	St. Gh. New Phan.	6-Vert 6-Vert	*	*
Star.....	Durant Motors, Inc.....	Elizabeth, N. J.	(4 6	4-Vert 6-Vert	550 725	765 975
Stearns Knight.....	F. B. Stearns Co.....	12435 Euclid Avenue. Cleveland, Ohio	(F6-85 G-885	6-Vert 8-Vert	3250 3850	3750 4650
Studebaker.....	Studebaker Corp. of America.....	Bronson and Main Streets. South Bend, Ind.	(Std. 6 Spec. 6 Big 6	6-Vert 6-Vert 6-Vert	1160 1480 1445	1335 1830 2245
Stutz.....	Stutz Motor Car Co. of America, Inc.....	10th Street and N. Capitol Avenue. Indianapolis, Ind.	AA	8-Vert	3150	3995
Velle.....	Velle Motors Corp.....	109 Velle Place. Moline, Ill.	(Std. 50 Spec. 60	6-Vert 6-Vert	1165 1450	1165 1635
Wills Ste. Claire.....	Wills Sainte Claire, Inc.....	Marysville, Mich.	T6	6-Vert	2700	3350
Willys Knight.....	Willys-Overland, Inc.....	Walcott Blvd. Toledo, Ohio	(66-A 70-A	6-Vert 6-Vert	1850 1295	2295 1495

\*Prices on application.

## Garage Owners Organize

BUFFALO, April 30.—The International Garage Association, with a membership comprised of the owners or operators of large garages in the United States and Canada, was organized at an all-day session held at the Statler. The association, the first of its kind to

be established, was organized for the mutual protection of large garage owners and for the exchange of business ideas and operation policies.

Millard C. Dorntge, manager of the Statler garage, Buffalo, was unanimously elected president of the association, Allen A. Kerr, of Cleveland, O.,

vice-president, and Irving W. Steele, Rochester, treasurer. The board of directors will be composed of the officers of the association and Owen H. Owens, Montreal; James Richdale, Boston, Mass., and F. H. Wogan, York, Pa. Mr. Dorntge was the originator of the association idea.



# Electrical Equipment

Including Ignition Systems, Generator, Starter,

MAKE AND MODEL	IGNITION SYSTEM				GENERATOR AND STARTER							STARTING MOTOR					BATTERY				Hd. Lt. Lens	Lamp Bulbs Mazda Nos.						
	Make	Model	Current Source	Spark Control	Make	Model	Norm. Chg. Rate	R.P.M.	Field Fuse Amp.	Model	Engagement	Lock Torque		No Load Bench Test			Make	Length	Width	Height		Volts and Amps. Capacity	Outside Diameter	Head Light	Dim. if Sep. Lamp	Cowl	Tail	Instr. Board
												Lb. Ft.	Voltage	Amps.	R.P.M.	Voltage												
Auburn..... 6-66	D-R	637W	Bat.	.....	D-R	940E	C15-18	2500	.....	714E	Bendix	10	3.5	425	5000	5.2	65	USL	8 7/8 x 7 1/8 x 8	6-90	8 1/2	1110	63	N	63	63		
Auburn..... 8-77	D-R	658B	Bat.	.....	D-R	949C	H9-12	1450	.....	716A	Bendix	15	3.7	450	3000	5.0	70	USL	8 7/8 x 7 1/8 x 8	6-90	8 1/2	1110	63	N	63	63		
Auburn..... 8-88	D-R	648B	Bat.	S-Au	D-R	949Q	C11	2500	.....	720Q	Bendix	10	3.5	425	5000	5.2	65	USL	10 3/8 x 7 1/8 x 9 1/8	6-100	8 1/2	1110	N	N	63	63		
Buick..... 115	D-R	17046	Bat.	S-Au	D-R	317	H12-14	1700	.....	316	S-Gear	12	2.7	453	.....	6	60	Exide	9 3/8 x 7 3/8 x 9 1/8	6-90	8 3/4	1110	63	63	63	63		
Buick..... 120 & 128	D-R	17046	Bat.	S-Au	D-R	317	C15-18	1700	.....	316	S-Gear	12	2.7	450	.....	6	60	Exide	10 1/4 x 7 3/8 x 9 1/8	6-105	8 3/4	1110	N	63	63	63		
Cadillac..... 314	D-R	4016	Bat.	S-Au	D-R	370	.....	.....	.....	349	S-Gear	.....	.....	.....	.....	.....	.....	Exide	20 1/2 x 5 1/2 x 8 1/2	6-130	10 1/8	1110	63	63	63	63		
Chandler..... St. 6	D-R	637V	Bat.	S-Au	D-R	949E	H10-5	1900	.....	717A	Bendix	11	3.6	450	5000	5.0	70	Presto	9 1/8 x 7 3/8 x 9 1/8	6-105	9	1129	N	63	63	63		
Chandler..... Spec. 6	D-R	637U	Bat.	S-Au	D-R	949D	H10-5	1900	.....	713J	Bendix	12	3.63	475	5000	5.0	65	Presto	9 1/8 x 7 3/8 x 9 1/8	6-105	9	1129	N	63	63	63		
Chandler..... Big 6	D-R	637X	Bat.	S-Au	D-R	944C	H10-5	1400	.....	720W	Bendix	15	3.15	570	6000	5.0	65	Presto	10 1/8 x 7 3/8 x 9 1/8	6-105	9	1129	81	63	63	63		
Chandler..... Royal St. 8	D-R	658G	Bat.	S-Au	D-R	944D	.....	.....	.....	727A	Bendix	.....	.....	.....	.....	.....	.....	Presto	10 1/8 x 7 3/8 x 9 1/8	6-105	9	1129	81	63	63	63		
Chevrolet..... AA	D-R	374A	Bat.	.....	D-R	943B	H11	2500	.....	710A	.....	9.5	3.1	575	8000	5.0	65	Varies	8 1/8 x 6 3/8 x 8	6-90	8 3/8	1129	N	63	63	63		
Chrysler..... 50	D-R	638C	Bat.	S-Au	D-R	947A	H13	2000	.....	712F	Bendix	11	3.60	450	5000	5.0	70	Willard	9 3/8 x 7 1/8 x 9 1/8	6-93	8 1/2	1129	.....	.....	63	63		
Chrysler..... 60	D-R	637J	Bat.	S-Au	D-R	941X	H14	1800	.....	714B	Bendix	12	3.63	475	5000	5.0	65	Willard	7 1/8 x 9 1/8 x 9 3/8	6-93	7 3/8	1129	.....	.....	63	63		
Chrysler..... 70	D-R	656B	Bat.	S-Au	D-R	941C	C18-20	1300	.....	724C	Bendix	10	3.5	425	5000	5.2	65	Willard	10 1/4 x 7 1/4 x 9 1/4	6-100	8	1129	.....	.....	63	63		
Chrysler..... 80	D-R	656C	Bat.	S-Au	D-R	945B	C18-20	2000	.....	732A	S-Gear	32	3	600	2000	5	65	Willard	13 1/8 x 7 3/8 x 9 1/8	6-160	8	1110	N	63	63	63		
Cunningham..... V-7	D-R	5218	Bat.	S-Au	D-R	285	H13	1600	.....	183	Bendix	24	2.75	.....	.....	6	50	Willard	11 3/8 x 7 1/8 x 10	6-132	11	1129	N	81	63	63		
Dagmar..... 6-60	D-R	.....	Bat.	.....	D-R	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Exide	10 3/8 x 7 1/8 x 10	6-111	10	1129	81	64	63	64		
Dagmar..... 6-70	D-R	5208	Bat.	.....	Delco	258	H15	1600	.....	200	Bendix	27	2.75	.....	6	36	Exide	10 3/8 x 7 1/8 x 10	6-111	10	1129	81	N	63	64			
Davis..... 92-27	D-R	5294	Bat.	S-Au	D-R	325	H10-12	1600	.....	313	Bendix	13	3.2	.....	6	50	Willard	10 1/4 x 7 1/8 x 9	6-95	8 3/4	1110	N	81	63	63			
Davis..... 94-27	D-R	5294	Bat.	S-Au	D-R	325	H10-12	1600	.....	313	Bendix	13	3.2	.....	6	50	Willard	9 1/4 x 7 3/8 x 9	6-90	8 3/4	1110	N	81	63	63			
Diana..... Str. 8	D-R	5287	Bat.	S-Au	D-R	325	H10-12	1600	.....	313	Bendix	13	3.2	.....	6	50	USL	11 3/8 x 7 1/8 x 9 3/4	6-142	9 3/8	1129	N	63	63	63			
Dodge Brothers.....	N-East	TU10786	Bat.	S-Au	N-East	6334	C16	1200	.....	6304A	Bendix	9.4	4.1	390	.....	6	60	Willard	.....	6-120	.....	1129	63	63	63	63		
DuPont..... E	A-Bos	.....	Bat.	Hand	A-Bos	1047	H9-10	1700	.....	930	Bendix	12-15	3.5	475	5000	6	50	Westin	10 3/8 x 7 1/8 x 9 1/4	6-113	8 3/4	1129	81	63	63	63		
Elcar..... 6-70	D-R	.....	Bat.	.....	D-R	.....	H11-13	1600	N	.....	Bendix	16	3.2	575	6000	5.8	60	USL	8 7/8 x 7 1/8 x 8	6-.....	.....	1110	81	N	63	63		
Elcar..... 8-82	D-R	.....	Bat.	.....	D-R	.....	.....	.....	.....	.....	Bendix	16	3.2	575	6000	5.8	60	USL	10 1/4 x 7 1/8 x 8	6-104	9 3/8	1110	81	N	.....	81		
Elcar..... 8-90	D-R	648A	Bat.	Auto	D-R	941D	H11-13	1600	N	720J	Bendix	16	3.2	575	6000	5.8	60	USL	10 1/4 x 7 1/8 x 8	6-104	9 3/8	1110	81	N	63	63		
Erskine..... 6	D-R	637Y	Bat.	.....	D-R	942B	.....	.....	.....	712G	Bendix	.....	.....	.....	.....	.....	.....	Willard	.....	6-90	.....	1110	81	N	63	63		
Essex..... Super Six	A-Lite	1B4001	Bat.	Auto	A-Lite	GAA4001	H10	.....	.....	MU4001A	Bendix	.....	.....	.....	.....	.....	.....	Presto	9x7x8 3/4	6-105	8	1129	N	63	63	63		
Falcon Knight.....	A-Lite	.....	Bat.	.....	A-Lite	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....		
Flint..... Z-18	A-Lite	IG4118A	Bat.	S-Au	A-Lite	GY4101	.....	.....	.....	MP4102	Bendix	.....	.....	.....	.....	.....	.....	USL	9x8 1/8 x 7 1/8	6-92	8 1/2	1129	N	63	63	63		
Flint..... 60	A-Lite	IG4118A	Bat.	S-Au	A-Lite	GJ4102	C12	2200	5	MN4111	Bendix	13.5	3	540	.....	5.5	50	USL	9 1/8 x 7 1/8 x 9 3/4	6-92	8 1/2	1129	N	63	63	63		
Flint..... 80	DeJon	IG4121	Bat.	Hand	A-Lite	GRA4101	C14	975	5	MN4110	Bendix	13.5	3	540	.....	5.5	50	USL	10 1/8 x 7 1/8 x 9 3/4	6-117	9 1/2	1129	N	63	63	63		
Ford..... T	Own	.....	B&M	Hand	Own	.....	C13	2000	.....	.....	Bendix	17.5	3.1	650	3600	5.8	50	Own	9 1/8 x 7 1/8 x 9 3/8	6-80	8 3/8	1158	N	N	63	63		
Franklin..... 11-B	A-Kent	RAU	Bat.	Auto	Dyneto	CE	C16	850	.....	DG	Bendix	25	3.5	.....	6	50	Willard	12 7/8 x 7 1/8 x 9 1/4	6-136	10 1/4	1110	N	N	61	61			
Gardner..... 80	D-R	658B	Bat.	S-Au	D-R	949C	H9-12	1450	N	716A	Bendix	15	3.7	450	3000	5	70	Presto	10 5/8 x 7 1/8 x 8 1/4	6-120	9 3/4	1110	63	N	63	63		
Gardner..... 90	D-R	658A	Bat.	S-Au	D-R	941D	H9-12	1450	N	720Q	Bendix	15	3.15	570	6000	5	65	Presto	13x7 1/8 x 9 1/8	6-135	9 3/4	1110	63	N	63	63		
Hudson..... Super Six	A-Lite	2G	Bat.	S-Au	A-Lite	GAB4001	.....	.....	.....	MUA4001	.....	.....	.....	.....	.....	.....	.....	Presto	10 1/4 x 7 3/8 x 8	6-120	9	1129	N	63	63	63		
Hupmobile..... A-1	A-Lite	IG4117A	Bat.	S-Au	A-Lite	GJ4112	H11.5	2400	5	MN4109	Bendix	12.5	3.4	450	.....	5.5	50	Willard	10 3/8 x 7 1/8 x 9 3/8	6-100	7 3/8	1110	N	63	63	63		
Hupmobile..... E-3	Delco	5295	Bat.	S-Au	A-Lite	GXB4101	C16	1200	5	MR4101	Bendix	44	4	820	.....	5.8	70	Willard	13 1/4 x 7 1/8 x 9 3/4	6-153	9	1110	N	63	63	63		
Jordan..... R	A-Lite	.....	Bat.	S-Au	A-Lite	.....	.....	.....	.....	.....	Bendix	.....	.....	.....	.....	.....	.....	Willard	9 5/8 x 7 1/8 x 9 1/4	6-84	.....	.....	.....	.....	.....	.....		
Jordan..... AA	A-Bos	8202	Bat.	S-Au	A-Bos	1261	C8	7000	.....	937	Bendix	20	4	450	.....	6	60	Willard	12 7/8 x 7 1/8 x 9 1/4	6-135	8 3/4	1129	81	63	63	63		
Jordan..... J-1	A-Bos	8202	Bat.	S-Au	A-Bos	1277	C15	1600	7.5	965	Bendix	9.5	4	400	5000	6	60	Willard	12 7/8 x 7 1/8 x 5 1/4	6-135	8 3/8	1129	81	63	63	63		
Kissel..... 6-55	D-R	626R	Bat.	S-Au	D-R	944A	C11	2500	.....	720D	Bendix	15	3.15	570	6000	5	65	Willard	10 3/8 x 7 1/8 x 10	6-118	8 3/4	1110	N	63	63	64		
Kissel..... 8-75	D-R	648A	Bat.	S-Au	D-R	917V	C19	1900	.....	720J	Bendix	15	3.15	570	6000	5	65	Willard	10 3/8 x 7 1/8 x 10	6-118	8 3/4	1110	N	63	63	64		
Kissel..... 8-65	D-R	626R	Bat.	S-Au	D-R	944A	C11	2500	.....	720D	Bendix	15	3.15	570	6000	5	65	Willard	10 1/4 x 8 3/8 x 8 3/8	6-118	8 3/4	1110	N	63	63	64		
LaSalle.....	D-R	4023D	Bat.	.....	D-R	370D	.....	.....	.....	725B	.....	.....	.....	.....	.....	.....	.....	Exide	10 5/8 x 7 1/8 x 7 1/8	6-100	9 3/8	1110	.....	83	63	63		
Lincoln..... 8	Delco	5226	Bat.	Auto	Delco	193	H15	1400	.....	193	S-Gear	10	3.0	.....														

# on 1927 Passenger Cars

## Battery, Headlight Lens Sizes and Lamp Bulbs

MAKE AND MODEL	IGNITION SYSTEM				GENERATOR AND STARTER						STARTING MOTOR					BATTERY				Hd. Lt. Lens	Lamp Bulbs Mazda Nos.							
	Make	Model	Current Source	Spark Control	Generator					Starter		Lock Torque			No Load Bench Test		Make	Length	Width		Height	Volts and Amps. Hrs. Capacity	Outside Diameter	Head Light	Dim. if Sep. Lamp	Cowl	Tail	Instr. Board
					Make	Model	Norm. Chg. Rate	R.P.M.	Field Fuse Amp.	Model	Engagement	Lb. Ft.	Voltage	Amps.	R.P.M.	Voltage												
McFarlan..... Str. 8	D-R	5286	Bat.	S-Au	D-R	256	H15	1600	313	Bendix	13	3.2	6	50	Willard	10 3/4x7 1/4x9 3/4	6-120	8 1/2	1129	81	81	81	81	81	81	81	81	
McFarlan..... TV	DeJon	5288	Bat.	S-Au	DeJon	269	H10-5	1900	714E	Bendix	12	3.6	475	5000	5.0	65	USL	12 1/4x7 1/4x9 3/4	6-165	9	1129	81	81	81	81	81	81	
Moon..... 6-60	D-R	4017	Bat.	Auto	D-R	940C	H10-12	1600	286	Bendix	12	3.1	6	60	USL	9 1/2x7x9 3/4	6-84	8 3/4	1129	N	63	63	63	63	63	63	63	
Moon..... Series A	D-R	5274	Bat.	S-Au	D-R	308	H10-12	1600	286	Bendix	12	3.1	6	60	USL	9 1/2x7x9 3/4	6-84	8 3/4	1129	N	63	63	63	63	63	63	63	
Nash..... Light 6	A-Lite	IG4110	Bat.	Auto	A-Lite	GYA4205	H17-18	1500	323	S-Gear	16	3	6	50	USL	9 3/8x6 3/4x9 3/4	6-92	8	1129	N	63	63	63	63	63	63	63	
Nash..... Advanced	D-R	5288	Bat.	H&A	D-R	269	H17	2000	323	S-Gear	16	3	6	50	Gould	10 3/8x7 1/4x9 3/4	6-117	9	1110	N	63	63	63	63	63	63	63	
Nash..... Special	D-R	5272	Bat.	H&A	D-R	291	H17	2000	323	S-Gear	16	3	6	50	USL	9 3/8x7 1/4x9 3/4	6-92	8	1110	N	63	63	63	63	63	63	63	
Oakland..... 6	D-R	IG4110	Bat.	Auto	D-R	GYA4201	C16	1200	5	MN4108	Bendix	11.5	3	540	5.5	50	Willard	10 1/2x7 1/4x9 3/4	6-100	8 3/4	1110	N	63	63	63	63	63	
Oldsmobile..... 30E	D-R	5284	Bat.	S-Au	D-R	327	H12	1600	326	Bendix	12.5	5	6	50	Willard	9 3/8x7 1/4x8	6-80	8 3/4	1110	N	63	63	63	63	63	63	63	
Overland.. (4) Whippet	A-Lite	IG4036E	Bat.	Hand	A-Lite	GTB4101	H14	1800	7.9	MO4101	Bendix	16.8	5	690	6	50	USL	9 1/2x7x7 3/4	6-80	8 3/4	1129	N	63	63	63	63	63	
Overland.. (6) Whippet	A-Lite	IB4116B	Bat.	S-Au	A-Lite	GP4105				MN4104	Bendix					USL	10 3/8x7x7 3/4	6-96	8 3/4	1129								
Packard..... 6	Delco	5249	Bat.	S-Au	Dyneto	CG	C8	3500		DH	Bendix	25	3.5	6	50	Presto	10 3/4x7 1/4x9 3/4	6-112	8 3/4	1110	63	N	63	63	63	63		
Packard..... 8	Delco	5260	Bat.	S-Au	Dyneto	CG	C8	3500		DM	Bendix	25	3.5	6	50	Presto	13 1/4x7 1/4x9 3/4	6-160	9	1110	63	N	63	63	63	63		
Paige..... 6-45	D-R	637A	Bat.	S-Au	D-R	943A	H11	1400		711E	Bendix	11	3.6	450		Westin	10 3/8x7x9 3/4	6-115	8 3/4	1129	N	63	63	64	64	64		
Paige..... 6-65	A-Kent	LA	Bat.	S-Au	D-R	917U	H11	1700	5	713C	Bendix	11	2.85	175		Westin	10 3/8x7x9 3/4	6-115	9	1129	N	63	63	63	63	63		
Paige..... 6-75	A-Kent	LA	Bat.	S-Au	D-R	917U	H11	1700	5	713C	Bendix	11	2.85	175		Westin	11 3/8x7x9 3/4	6-135	9	1129	N	63	63	64	64	64		
Paige..... 8-85	D-R	658	Bat.	S-Au	D-R	345F	H9-13	1800	5	720Q	Bendix	15	3.1	575		Westin	11 3/8x7x9 3/4	6-135	9	1129	N	63	63	64	64	64		
Peerless..... 6-60	A-Lite		Bat.		A-Lite												9											
Peerless..... 6-72	Delco	5267	Bat.	S-Au	Delco	284	H17	1600		282	Bendix	11	2.8	6	60	Willard	10 3/4x7 1/4x9 3/4	6-	9	1129	R	63	63	63	63	63		
Peerless..... 6-80	A-Lite	IG4118	Bat.	S-Au	A-Lite	GYA4203	H14	1600	5	MN4114	Bendix	13	3.2	650	5.5	50	USL	10 3/8x7x9 3/4	6-	8 3/4	1110	N	63	63	63	63	63	
Peerless..... 6-90	A-Lite	IG4137	Bat.	S-Au	A-Lite	GRE4206	H14	1200	5	MW0101	Bendix	14.75	3	730		USL	10 3/8x7 1/4x9 3/4	6-	9	1110	N	63	63	63	63	63		
Peerless..... 8-69	Delco	005297	Bat.	S-Au	Delco	000258	C18	1600		000277	Bendix	13	3.2	6	50	Exide	12 1/2x7 1/4x9 3/4	6-	10 3/4	1110	N	63	63	63	63	63		
Pierce Arrow..... 36	Delco	5265	Bat.	S-Au	Delco	279	H16-18	1600		252	S-Gear	40	2.75	6	50	Willard	13x7 1/2x10	6-160	9 1/4	1129	81	81	81	81	81	81		
Pierce Arrow..... 80	Delco		Bat.	S-Au	Delco	300	H17	2000		297	S-Gear	19.5	3.5	6	60	Willard	10 1/2x7 1/4x9 3/4	6-111	8 3/4	1129	81	81	81	81	81	81		
Pontiac..... Six	D-R	637C	Bat.	Auto	D-R	943C	C11	2500			S-Gear					Presto	9 1/2x7x9 3/4	6-80	8 3/4	1110	N	63	63	63	63	63		
Reo..... A	D-R	636K	Bat.	S-Au	D-R	949B	H10-5	1900		724E	S-Gear	22	3.0	600	3500	5.0	70	Willard	10 3/8x7 1/4x9 3/4	6-111	9 1/2	1110	N	63	63	63	63	
Rickenbacker..... 6-70	Bosch		Bat.	S-Au	Bosch	1066	H9-10	1700	5	966	S-Gear	13.5	3.75	470	5000	6	40	Willard	10 3/4x7 1/4x9 3/4	6-105	9	1110	N	63	63	63	63	
Rickenbacker..... 8-80	D-R		Bat.	S-Au	A-Bos						S-Gear					Willard	10 3/4x7 1/4x9 3/4	6-105	8 3/4	1110	N	63	63	63	63	63		
Rickenbacker..... 8-90	D-R	5276	Bat.	S-Au	A-Bos	1066	H9-10	1700	5	957	S-Gear	25	4	450	1500	6	60	Willard	12 1/2x7 1/4x9 3/4	6-135	8 3/4	1110	N	63	63	63	63	
Roamer..... 8-78	A-Lite		Bat.	Hand	A-Lite						Bendix					Presto		6-	9	1129	63	81	81	81	81	81		
Roamer..... 8-80	A-Lite		Bat.		A-Lite											Presto	10 3/8x7 1/4x9 3/4	6-130	9	1129	63	81	81	81	81	81		
Roamer..... 8-88	A-Lite	IG4105	Bat.	Hand	A-Lite	GJ4116	C14	1300	5	MN4102	Bendix	13.6	3	620	5.5	50	Presto	10 3/8x7 1/4x9 3/4	6-130	9	1129	63	81	81	81	81	81	
Rolls Royce Sil. Ghost	A-Bos	T6209	Bat.	S-Au	Westin	571R	15	1200	1.4	778	Chain	31.0	4.0	800		Exide	13 1/2x7 1/4x9 3/4	6-120	10 3/4	1130	82	82	82	82	82	82		
Star..... 4	A-Lite	IG4036D	Bat.	Hand	A-Lite	GT4001A	C14	1450	5	MO4102	Bendix	10	3.6	490	5.5	60	USL	9 3/8x7 1/4x9 3/4	6-84	7	1129	N	63	63	64	64	64	
Star..... 6	A-Lite	IG4087A	Bat.	Hand	A-Lite	GT4001A	C14	1450	5	MO4102	Bendix	10	3.6	490	5.5	50	USL	9 3/8x7 1/4x9 3/4	6-84	7 3/4	1129	N	63	63	64	64	64	
Stearns-Knight..... F6-85	DeJon		Bat.	Hand	DeJon						Bendix					USL	17x7 1/4x9 3/4	12-102	10 1/2	1110	89		67	67	67	67		
Stearns-Knight..... G-885	DeJon		Bat.	Hand	DeJon											USL	17x7 1/4x9 3/4	12-102	10 1/2	1110			63	63	63	63		
Studebaker..... Std. 6	D-R	626K	Bat.	Auto	D-R	917A	C14	2500		720M	Bendix	15	3.15	570	6000	5	65	Willard		6-90		1110	N	63	63	63	63	
Studebaker..... Spec. 6	D-R	626L	Bat.	Auto	D-R	917E	C14	2500		723A	S-Gear	70	3.25	600	1000	5	70	Willard	10 3/8x7 1/4x9 3/4	6-111		1110	N	63	63	63	63	
Studebaker..... Big 6	D-R	626L	Bat.	Auto	D-R	917E	C14	2500		723A	S-Gear	70	3.25	600	1000	5	70	Willard	10 3/8x7 1/4x9 3/4	6-111	9 1/2	1110	63	N	63	63	63	
Stutz..... AA	D-R	004022	Bat.		D-R	000363	H7			000334	Bendix	11.5	2.75	500	6	60	Presto	13 1/2x7x9 3/4	6-170	9 1/2	1110	63	N	63	63	63	63	
Velie..... Std. 50	A-Lite	IG4146	Bat.	S-Au	A-Lite	GTB4201				MN4119	Bendix					Presto	9 1/2x7x9 3/4	6-90	8	1129								
Velie..... Spec. 60	D-R	637	Bat.	S-Au	D-R	941R	H10-5	1900		720P		15	3.15	570	6000	5	65	Presto	10 3/8x7 1/4x9 3/4	6-102	8 3/4	1129						
Wills Ste. Claire..... T6	D-R	5289	Bat.	Auto	D-R	311	H13-15	1600		321	Bendix	16	3	6	50	Willard	20x4 3/8x10	6-132	8	1110	N	63	63	63	63	63		
Willys Knight..... 66-A	A-Lite	IG4107	Bat.	S-Au	A-Lite	GJA4109	C14	1250	5	ML4105	Bendix	16	3.1	560	5.5	50	USL	13 1/2x7x8 3/4	6-166	8 3/4	1129	R	63	63	63	63	63	
Willys Knight..... 70-A	A-Lite	IG4107B	Bat.	S-Au	A-Lite	GY4103	C14	1200	5	ML4106	Bendix	16	3	560	5.5	50	USL	11 1/2x7x8 3/4	6-142	8 3/4	1110	N	63	63	63	63	63	

### ABBREVIATIONS

\*—Others Used

A-Lite—Auto-Lite

A-Bos—American Bosch

A-Kent—Atwater Kent

Auto—Automatic

Bat—Battery

B&M—Battery & Magneto

D-R—Delco Remy

H&A—Hand and Automatic

N—None

N-Est—North East

Presto—Prestolite

S-Au—Semi-Automatic

S-Gear—Sliding Gear

Westin—Westinghouse



# Prices and Weights of Current Passenger Car Models

SHIP				SHIP				SHIP				SHIP				
WT. PASS. BODY STYLE. PRICE				WT. PASS. BODY STYLE. PRICE				WT. PASS. BODY STYLE. PRICE				WT. PASS. BODY STYLE. PRICE				
<b>AUBURN</b>				<b>CHRYSLER</b>				<b>DU PONT</b>				<b>"E-3"</b>				
"6-66"				"50"				"E"				"E-3"				
2-4-p	Roadster	\$1,095		2145	5-p	Touring	\$ 750	3700	4-p	Roadster	\$2,800	3300	5-p	Touring	\$1,945	
3040	5-p	Touring	1,145	2025	2-p	Roadster	750	3850	5-p	Touring	2,800	3360	7-p	Touring	2,045	
3080	5-p	Sport Sedan	1,155	2130	2-4-p	Roadster	795	3850	4-p	Coupe	3,200	3355	2-4-p	Roadster	2,045	
3040	5-p	Wanderer Se'n	1,345	2230	2-p	Coupe	750	4100	5-p	Sedan	3,400	3465	2-4-p	Coupe	2,345	
"8-77"				2235	5-p	Coach	780	4100	5-p	Conv't Sedan	3,750	3515	5-p	Brougham	2,245	
2-p	Roadster	\$1,395		2410	5-p	Sedan	830	<b>ELCAR</b>				3545	5-p	Sedan	2,345	
3350	5-p	Touring	1,445	2350	5-p	Landau Sedan	885	2580	4-p	Lan. Rdster	\$1,475	3525	5-p	Victoria	2,345	
3390	5-p	Sport Sedan	1,495	"60"				2670	5-p	Brougham	1,295	3360	7-p	Sedan	2,495	
3390	5-p	Wanderer Se'n	1,745	2570	5-p	Touring	\$1,075	2750	5-p	Sedan	1,395	3360	7-p	Sedan Lim.	2,595	
"8-88"				2545	2-p	Roadster	1,145	"8-82"				<b>JORDAN</b>				
(129 in. W. B.)				2615	2-4-p	Roadster	1,175	3320	2-4-p	Land. R'dster	\$1,870	"R"				
3180	4-p	Sp. Roadster	\$1,995	2690	2-p	Coupe	1,125	3410	5-p	Brougham	1,595	4-p	Sport Salon	\$1,595		
3200	5-p	Touring	2,045	2685	3-5-p	Coupe	1,245	3490	5-p	Sedan	1,790	2-4-p	Tomboy	1,595		
3380	5-p	Sport Sedan	2,095	2795	5-p	Coach	1,145	"8-90"				5-p	Sedan	1,595		
3450	5-p	Sedan	2,195	2835	5-p	Sedan	1,245	3675	7-p	Touring	\$2,265	"J-1"				
3450	5-p	Wanderer	2,245	"70"				3620	2-4-p	Land. R'dster	2,295	2915	4-p	Playboy Road.	\$1,545	
(146 in. W. B.)				2845	2-4-p	Roadster	\$1,495	3710	5-p	Brougham	2,315	3070	2-4-p	Sport Coupe	1,695	
4200	7-p	Sedan	\$2,595	2930	5-p	Phaeton	1,395	3895	5-p	Sedan	2,195	3200	4-p	Cus. Victoria	1,695	
<b>BUICK</b>				2905	5-p	Sp. Phaeton	1,495	4245	7-p	Sedan	2,465	3200	5-p	Cus. Sedan	1,695	
"115"				2905	4-p	Coupe	1,595	<b>ERSKINE</b>				Series "AA"				
2990	2-4-p	Roadster	\$1,195	3000	2-4-p	Royal Coupe	1,545	2300	5-p	Tourer	\$ 945	3470	5-p	Cus. Sedan	\$2,495	
3040	5-p	Touring	1,225	3090	5-p	Brougham	1,525	2400	2-p	Coupe	945	3470	4-p	Cus. Victoria	2,495	
3110	2-4-p	Coupe	1,195	3150	5-p	Royal Sedan	1,595	2400	5-p	Sedan	995	<b>KISSEL</b>				
3215	5-p	2d. Sedan	1,195	2935	2-4-p	Cabriolet	1,745	"2-4-p Cust. Coupe"				"6-55"				
3190	4-p	Coupe	1,275	3160	5-p	Crown Sedan	1,795	<b>ESSEX</b>				(124 in. W. B.)				
3190	2-p	Spec. Coupe	1,275	"80"				4-p	Speedster	\$ 785	3020	5-p	Phaeton	\$1,685		
3300	5-p	4d. Sedan	1,295	3765	5-p	Phaeton	\$2,495	2-p	Speedster	700	3160	4-p	Speedster	1,895		
3305	5-p	Town Bro'm	1,375	3805	2-4-p	Roadster	2,595	2450	5-p	Coach	735	3483	4-p	Coupe R'dster	1,895	
"120"				4110	5-p	Coupe	3,095	2340	2-p	Coupe	735	3300	5-p	Brougham	1,695	
(120 in. W. B.)				4055	5-p	Sedan	3,095	2530	5-p	Sedan 4d.	795	3485	5-p	Spec. Bro'm	1,795	
3800	4-p	Coupe	\$1,465	(192½ in.)*				<b>FALCON KNIGHT</b>				3440	5-p	Bro'm Sedan	1,895	
3750	5-p	2d. Sedan	1,395	4090	4-p	Coupe	\$2,895	4-p	Roadster		3378	5-p	Conv't Bro'm	2,295		
3870	5-p	4d. Sedan	1,495	4025	2-p	Cabriolet	3,495	5-p	Touring		3660	7-p	Touring	\$1,785		
"128"				(198½ in.)*				5-p	Coupe		3225	4-p	Tourster	1,895		
(128 in. W. B.)				4195	7-p	Sportif	\$3,995	5-p	Landau		3596	5-p	Spec. Bro'm	2,095		
3655	2-4-p	Sp. Roadster	\$1,495	4370	7-p	Sedan Lim.	3,595	5-p	Brougham	\$ 995	3770	7-p	Sedan	2,295		
3735	4-p	Sp. Touring	1,525	4432	5-p	Town Car	5,495	5-p	Sedan	1,095	"8-65"					
3905	3-p	Country Club	1,765	*Cloth Upholstery. Leather at extra cost.				<b>FLINT</b>				(125 in. W. B.)				
3940	5-p	Coupe	1,850	*Overall length.				2450	5-p	Coach	\$ 795	3240	5-p	Phaeton	\$1,885	
3915	3-5-p	Conv't Coupe	1,925	<b>CUNNINGHAM</b>				2580	5-p	DeL. Coach	895	3155	4-p	Speedster	2,095	
4050	5-p	Brough. Sedan	1,925	"V-7"				2750	5-p	Touring	\$1,250	3343	4-p	Coupe R'dster	2,095	
4115	7-p	Sedan	1,995	4500	4-p	Sp. Touring	\$6,150	2885	4-p	Sp. Roadster	1,350	3330	5-p	Brougham	1,895	
<b>CADILLAC</b>				4600	7-p	Touring	6,650	2890	4-p	Coupe Rdster	1,395	3345	5-p	Spec. Bro'm	1,995	
"314" Standard Line				4700	4-p	Coupe	7,600	3030	5-p	Sedan 4d.	1,395	3400	5-p	Bro'm Sedan	2,095	
(132 in. W. B.)				5000	6-p	Limousine	8,100	3010	5-p	Brougham	1,395	3518	5-p	Conv't Bro'm	2,495	
4170	5-p	Brougham	\$2,995	<b>DAGMAR</b>				(120 in. W. B.)				(132 in. W. B.)				
4105	2-p	Coupe	3,100	3750	4-p	Roadster	\$3,500	3245	5-p	Touring	\$1,450	3360	7-p	Touring	\$1,985	
4190	5-p	Victoria	3,195	3800	4-p	Sp. Tourer	3,500	3395	4-p	Sp. Touring	1,595	3155	4-p	Tourster	2,095	
4270	5-p	Sedan	3,250	3700	4-p	Phaeton	3,500	3500	4-p	Coupe	1,795	3455	5-p	Spec. Bro'm	2,295	
4460	2-p	Sport Coupe	3,500	4200	4-p	Petite Coupe	4,500	3625	5-p	Sedan	1,850	3630	7-p	Sedan	2,495	
4590	5-p	Sport Sedan	3,650	4200	4-p	Petite Sedan	4,500	(130 in. W. B.)				"8-75"				
(138 in. W. B.)				4500	4-p	De Luxe Coupe	4,750	3470	7-p	Touring	\$1,595	3220	5-p	Phaeton	\$2,185	
4420	7-p	Sedan	\$3,400	4700	5-p	Sedan	4,700	3780	7-p	Sedan	2,050	3360	4-p	Speedster	2,395	
4480	7-p	Imperial	5,535	4800	7-p	Sedan	4,750	"T"				3578	4-p	Coupe R'dster	2,395	
Custom Built				"6-60"				1658	2-p	Runabout	\$ 360	3565	5-p	Brougham	2,195	
(132 in.)				3150	5-p	Touring	\$1,785	1732	5-p	Touring	380	3671	5-p	Spec. Bro'm	2,295	
4220	2-p	Roadster	\$3,850	3100	2-p	Roadster	1,985	1820	2-p	Coupe	485	3760	5-p	Bro'm Sedan	2,395	
4300	2-p	Conv't Coupe	3,450	3200	4-p	Sp. Touring	1,985	1950	5-p	Tudor Sedan	495	3863	5-p	Conv't Bro'm	2,795	
(138 in. W. B.)				3500	5-p	Sedan	2,445	2002	5-p	Pordor Sedan	545	(139 in. W. B.)				
4285	7-p	Touring	\$3,450	<b>DAVIS</b>				<b>FRANKLIN</b>				3630	7-p	Touring	\$2,285	
4275	5-p	Phaeton	3,450	2915	5-p	Legion. Tour.	\$1,395	3015	3-p	Sport. Road.	\$2,690	3335	4-p	Tourster	2,395	
4705	5-p	Sp. Phaeton	3,975	3000	5-p	Sedan	1,595	2975	5-p	Touring	2,635	3755	5-p	Spec. Bro'm	2,595	
4465	5-p	Coupe	3,855	3055	5-p	Imperial Sedan	1,795	3105	3-p	Coupe	2,490	3975	7-p	Sedan	2,795	
4465	5-p	Sedan	3,995	"94-27"				3150	3-5-p	Coupe	2,565	3910	5-p	Bro'm Sed.	2,795	
4530	7-p	Suburban	4,125	2350	5-p	Roadster	\$1,245	3230	5-p	Sedan	2,790	De Luxe				
4615	7-p	Imperial	4,350	2500	5-p	Touring	1,285	3230	5-p	Sedan	2,790	4080	7-p	Sedan De Luxe	3,495	
<b>CHANDLER</b>				2570	5-p	Sedan	1,285	3230	5-p	Sedan	2,790	4125	7-p	Ber. Sed. DeL.	3,585	
Big Six				2375	3-p	Coupe	1,285	3360	7-p	Limousine	2,990	<b>LASALLE</b>				
3200	2-4-p	Roadster	\$1,695	2575	5-p	Imp. Sedan	1,385	"80"				2-4-p	Roadster	\$2,525		
3330	5-p	Touring	1,545	"Series 98"				2900	4-p	Roadster	\$1,395	5-p	Phaeton	2,495		
3345	7-p	Touring	1,645	3050	5-p	Touring	\$1,795	2900	4-p	Roadster DeL.	1,495	2-4-p	Coupe	2,585		
3570	5-p	20th C'y Sedan	1,495	3150	4-p	Princess Coupe	1,865	3370	5-p	Sedan	1,695	2-4-p	Conv't Coupe	2,635		
3570	5-p	Met. Sedan	1,595	3200	5-p	Emperor Sedan	1,885	3370	5-p	Sedan DeL.	1,795	4-p	Victoria	2,635		
3485	4-p	Coupe	1,675	<b>DIANA "St. 8"</b>				"90"				5-p	Sedan	2,685		
3570	5-p	De Luxe Sedan	1,695	2995	5-p	Phaeton	\$1,595	3450	4-p	Roadster	\$1,995	<b>LINCOLN "8"</b>				
3725	7-p	Sedan	1,895	2995	5-p	Roadster	1,645	3475	4-p	Landau Rdstr.	2,295	4930	2-p	Sport R'dster	\$4,600	
Standard Six				2995	5-p	Palm Bch. Rds.	1,795	3690	5-p	Brougham	2,295	4920	7-p	Sport Touring	4,600	
(108½ in. W. B.)				2995	7-p	Touring	1,995	3730	5-p	Sedan	2,295	4960	4-p	Sport Phaeton	4,600	
2475	5-p	Touring	\$ 945	3170	5-p	DeL. Bro'm	1,695	3690	5-p	Victoria	2,295	4910	4-p	Coupe	4,400	
2565	5-p	De Luxe Tour.	1,005	3275	5-p	De Luxe Sedan	1,995	3730	5-p	Sedan	2,295	4920	4-p	Sedan	4,800	
2470	2-4-p	Sport R'dster	1,135	3160	5-p	Cabriolet	1,995	3690	5-p	Victoria	2,295	5030	5-p	Sedan	4,800	
2685	5-p	Sedan	995	3640	7-p	Sedan (135 in.		3730	5-p	Sedan	2,295	5050	7-p	Sedan	5,000	
2620	2-p	Coupe	1,035	W. B.)				2,695	3690	5-p	Victoria	2,295	5180	7-p	Limousine	5,200
2635	5-p	De Luxe Sedan	1,095	<b>DODGE BROTHERS</b>				<b>HUDSON "Std. Line"</b>				"8-80"				
2620	2-p	De Luxe Coupe	1,125	2448	2-p	Roadster	\$ 795	3505	5-p	Coach	\$1,285	3055	5-p	Touring	\$1,785	
Special Six				2541	2-p	Spec'l Roadster	845	3620	5-p	Sedan	1,385	3035	4-p	Roadster	1,895	
(115 in. W. B.)				2574	5-p	Touring	795	"Custombuilt"				3335	5-p	Sedan	1,895	
2890	5-p	Touring	\$1,145	2669	5-p	Spec. Touring	975	7-p	Phaeton	\$1,600	3330	5-p	Brougham	1,895		
2940	5-p	Sport Touring	1,295	2622	2-4-p	Sport Roadster	975	4-p	Roadster	1,500	5-p	Brougham DeL.	2,550			
2995	2-p	Coupe	1,195	2598	2-p	Conv't Coupe	995	4-p	Brougham	1,575	"8-80"					
2995	2-p	De Luxe Coupe	1,285	2668	2-p	Spec. Coupe	895	4-p	Sedan	1,850	"90"					
3230	5-p	Sedan	1,295	2811	5-p	Sedan	895	5-p	Sedan	1,750	4475	4-p	Sportif	\$5,900		
"Royal Str. 8"				2893	5-p	Spec. Sedan	945	<b>HUPMOBILE</b>				4370	4-p	Roadster	\$3,900	
7-p	Touring	\$2,195		2937	5-p	DeL. Sedan	1,075	2620	5-p	Touring	\$1,325	4680	4-p	Victoria Coupe	\$5,950	
4-p	Roadster	2,195		W. B.)				2660	2-4-p	Roadster	1,385	4842	5-p	Victoria Sedan	7,300	
4-p	Coupe	2,195		<b>DODGE BROTHERS</b>				2800	5-p	Sedan	1,385	4615	7-p	Cabriolet	7,500	
3760	5-p	Sedan	2,195	2448	2-p	Roadster	\$ 795	2800	2-4-p	Coupe	1,385	4930	7-p	Suburban	7,500	
3870	7-p	Sedan	2,295	2541	2-p	Spec'l Roadster	845	2890	5-p	Brougham	1,385	4615	7-p	Brougham	7,500	
<b>CHEVROLET "AA"</b>				2574	5-p	Touring	795	"A-1"				"8-80"				
1890	2-p	Roadster	\$ 525	2669	5-p	Spec. Touring	975	2620	5-p	Touring	\$1,325	3055	5-p	Touring	\$1,785	
1965	5-p	Touring	525	2622	2-4-p	Sport Roadster										

# Prices and Weights of Current Passenger Car Models

SHIP	WT. PASS.	BODY STYLE.	PRICE	SHIP	WT. PASS.	BODY STYLE.	PRICE	SHIP	WT. PASS.	BODY STYLE.	PRICE	SHIP	WT. PASS.	BODY STYLE.	PRICE
LOCOMOBILE—Continued				OAKLAND "6"				"6-90"				STEARNS-KNIGHT "F 6-85"			
5030	4-p	Sportif	\$ 7,460	2500	5-p	Touring	\$1,025	.....	5-p	Phaeton	\$1,695	4185	4-p	Roadster	\$3,250
5330	7-p	Touring	7,460	2590	4-p	Sp. Roadster	1,175	.....	2-4-p	Sport Roadster	1,725	4285	4-p	Touring	3,250
5640	7-p	Touring Lim.	9,500	2745	5-p	Sp. Phaeton	1,095	3260	4-p	Coupe	1,725	4250	4-p	Cab-Roadster	3,450
5464	6-p	Brougham	10,050	2705	3-p	Landau Coupe	1,125	3410	5-p	Sedan	1,895	4407	4-p	Coupe	3,350
5868	7-p	Enc. Dr. Lim.	10,050	2855	5-p	4d. Sedan	1,195	3460	5-p	Landulet	1,995	4515	5-p	Std. Sedan	3,350
5624	7-p	Cabriolet	10,300	2885	5-p	Landau Sedan	1,295	.....	"8-69"	.....	4640	7-p	Sedan	3,550	
McFARLAN "TV"				OLDSMOBILE "30E"				(133½ in. W. B.)				4650 5-p Std. Sedan Lim. 3,550			
4000	2-p	Roadster	\$5,400	2335	5-p	Touring	\$ 875	3850	2-4-p	Roadster	\$2,995	4800	7-p	Sedan Lim.	3,750
4600	4-p	Sp. Touring	5,600	2490	5-p	Sp. Touring	980	.....	7-p	Sedan	3,095	"G-885"			
4900	4-p	Coupe	6,720	2317	4-p	DeL. Roadster	975	4125	5-p	Sedan	3,495	4580	4-p	Touring	3,850
5200	4-p	Tour. Sedan	6,720	2450	2-p	Coupe	925	4200	7-p	Sedan	3,595	4600	4-p	Cab. Roadster	4,250
5200	7-p	Tour. Sedan	6,810	2570	5-p	Coach	950	4275	5-p	Ber. Limousine	3,795	.....	4-p	Coupe	4,250
.....	6-p	Sedan	6,720	2650	2-p	DeLuxe Coupe	990	.....	(126 in. W. B.)	.....	.....	5-p	Sedan	4,350	
.....	7-p	Sedan	6,810	2720	4-p	Sport Coupe	1,035	4050	5-p	Sedan	\$2,795	4925	7-p	Sedan	4,450
.....	7-p	Spec. Sedan	6,810	2720	5-p	DeLuxe Coach	1,035	.....	.....	.....	.....	7-p	Limousine	4,650	
.....	7-p	Enc. Sedan	7,110	2625	5-p	Sedan	1,025	PIERCE-ARROW "80"				.....	5-p	Sedan Lim.	4,550
.....	7-p	Sub. Sedan	7,110	2780	5-p	DeLuxe Sedan	1,125	3285	2-p	Runabout	\$2,495	STUDEBAKER Standard Six			
5200	7-p	Town Car	9,000	2780	5-p	Landau	1,190	3300	4-p	Phaeton	3,095	2965	3-p	Du. Roadster	\$1,160
"Straight 8"				OVERLAND "(4) Whippet"				3440	7-p	Phaeton	2,895	3030	3-p	Sport Roadster	1,195
3400	2-p	Roadster	\$2,650	1985	5-p	Touring	\$ 625	3470	5-p	Brougham	2,495	3095	5-p	Du. Phaeton	1,180
3400	5-p	Touring	2,650	1930	2-4-p	Roadster	695	3405	2-p	Coupe	3,100	3140	3-p	Country Club	1,295
3450	7-p	Touring	2,750	2025	2-p	Coupe	625	3450	2-4-p	Coupe	3,200	3210	5-p	Coach	1,230
3400	4-p	Roadster	3,050	2075	5-p	Coach	625	3525	5-p	Std. Sedan	2,395	3115	5-p	Sedan	1,330
3650	5-p	Sedan	3,180	2185	5-p	Sedan	725	3565	5-p	Club Sedan	3,300	3235	5-p	Custom Sedan	1,335
3650	5-p	Sub. Sedan	3,380	2230	5-p	Landau	755	3620	7-p	Sedan	3,350	3180	4-p	Cus. Victoria	1,325
3700	7-p	Sedan	3,280	"(6) Whippet"				3570	5-p	Club Sed. Land.	3,400	Special Six			
3650	4-p	Coupe	3,480	2270	5-p	Touring	\$ 765	3680	7-p	Enc. Dr. Lim.	3,450	3480	2-4-p	Sp. Roadster	\$1,630
3650	5-p	Broug. Coach	3,180	2225	2-4-p	Roadster	825	3420	4-p	Coupe	3,250	3495	5-p	Du. Phaeton	1,480
3750	5-p	Town Car	4,600	2305	2-p	Coupe	795	3500	5-p	Sedan	3,895	3470	5-p	Coach	1,480
MARMON "Little Marmon"				2405	5-p	Coach	795	3660	7-p	Enc. Dr. Lim.	4,045	3620	5-p	Brougham	1,830
3019	2-p	Speedster	\$1,895	2440	5-p	Sedan	875	"36"				Big Six (120 in. W. B.)			
2977	4-p	Speedster	1,965	2490	5-p	Landau	925	4560	2-p	Runabout	\$5,875	3445	3-p	Du. Roadster	\$1,530
3054	2-p	Coupe Rdster	1,995	PACKARD "6"				4510	4-p	Touring	5,875	3485	2-4-p	Sport Roadster	1,495
3053	2-p	Coupe	1,895	3545	4-p	Roadster	\$2,350	4585	7-p	Touring	5,875	3580	5-p	Sport Phaeton	1,445
3039	4-p	Sedan 2d.	1,795	3590	5-p	Phaeton	2,250	4760	3-p	Coupe	6,375	3510	5-p	Club Coupe	1,480
3092	4-p	Sedan 4d.	1,895	3925	5-p	Sedan	2,250	4830	4-p	Sedan	6,375	.....	2-p	Com'der Coupe	1,545
.....	4-p	Brougham	1,895	(133 in. W. B.)				4815	7-p	Sedan	5,875	.....	4-p	Com'der Coupe	1,645
3119	5-p	Cus. Sedan 2W	2,595	3790	7-p	Touring	\$2,785	4795	4-p	Coupe Sedan	6,375	3705	4-p	Cus. Victoria	1,645
3172	5-p	Cus. Sedan 3W	2,595	3925	4-p	Coupe	2,685	4870	7-p	Enclosed Lim.	5,875	3835	5-p	Custom-Bro'm	1,585
3116	4-p	Cus. Victoria	2,595	4070	7-p	Sedan	2,785	4740	7-p	French Lim.	7,500	(127 in. W. B.)			
3040	4-p	Cus. Town Cab	3,125	4015	5-p	Club Sedan	2,725	4840	7-p	Sedan Landau	6,000	3720	7-p	Du. Phaeton	\$1,810
"E-75"				4130	7-p	Sedan Lim.	2,885	4880	4-p	Lim. Encl.	6,375	3910	5-p	Brougham 4d.	2,130
4251	2-p	Speedster	\$3,485	(136 in. W. B.)				4745	2-p	Coupe	6,600	4050	7-p	The President	2,245
4256	4-p	Speedster	3,485	4110	4-p	Runabout	\$3,850	4800	4-p	Sedan Landau	6,600	STUTZ "AA" (131 in. W. B.)			
4017	5-p	Phaeton	3,485	4130	5-p	Phaeton	3,750	4880	4-p	Encl. Landau	6,600	4058	2-4-p	Speedster	\$3,150
4480	7-p	Tour. Speedster	3,565	4475	4-p	Coupe	4,750	4865	7-p	French Landau	8,000	4175	4-p	Speedster	3,160
4374	2-p	Coupe R'dster	3,565	4430	5-p	Sedan	4,750	PONTIAC "Six"				4334	5-p	Brougham	3,195
4452	5-p	Town Coupe	3,195	(143 in. W. B.)				2160	2-4-p	Roadster	\$ 775	4340	5-p	Sedan	3,195
4373	2-p	Coupe	3,485	4250	7-p	Touring	\$3,950	2275	2-p	Coupe	775	4176	4-p	Vic. Coupe	3,175
4346	4-p	Victoria	3,485	4550	5-p	Club Sedan	4,890	2375	5-p	2d. Sedan	775	4182	2-4-p	Coupe	3,165
4525	5-p	Brougham	3,565	4660	7-p	Sedan	5,000	2345	4-p	Sport Cab.	835	.....	5-p	Landau Sed.	3,345
4498	5-p	Sedan	3,565	4700	7-p	Sedan Lim.	5,100	2460	5-p	Landau Sedan	895	(145 in. W. B.)			
4620	7-p	Sedan	3,640	PAIGE "6-45"				2510	5-p	DeL. Land. Sed.	975	4566	5-p	Tour. Bro'm	\$3,685
4515	5-p	Custom Sedan	3,960	2660	5-p	Touring	\$1,095	REO "A"				4656	7-p	Sedan	3,685
4678	7-p	Custom Sedan	4,075	2615	4-p	Cab R'dster	1,295	.....	2-p	Roadster	\$1,685	4731	7-p	Sedan Lim.	3,785
4718	7-p	Custom Lim.	4,175	2525	2-p	Coupe	1,095	.....	.....	Brougham	1,595	"AA De Luxe" (131 in. W. B.)			
MOON "6-60"				2760	5-p	Sedan	1,195	.....	4-p	Sport Coupe	1,625	4058	2-p	DeL. Speedst'r	\$3,250
2295	3-p	Roadster	\$ 995	"6-75"				.....	.....	Victoria	1,845	4175	4-p	DeL. Speedst'r	3,260
2340	5-p	Phaeton	995	3420	7-p	Touring	\$1,655	.....	.....	DeL. Sedan	1,995	.....	2-p	Coupe	3,265
2330	3-5-p	DeL. Roadster	1,095	3540	4-p	Cab Roadster	1,995	.....	.....	.....	.....	4176	4-p	Vic. Coupe	3,275
2330	3-5-p	Roy. Roadster	1,195	3550	5-p	Sedan	1,995	.....	.....	.....	.....	4334	5-p	Brougham	3,320
2575	3-5-p	Cab. Roadster	1,195	3550	4-p	Coupe	1,995	2800	5-p	Brougham	\$1,195	4340	5-p	Sedan	3,320
2575	3-5-p	Roy. Cab.	1,195	3765	7-p	Sedan	1,995	.....	.....	.....	.....	.....	5-p	Landau Sed.	3,470
2420	5-p	Coach	1,045	3805	7-p	Limousine	2,145	RICKENBACKER "6-70"				(145 in. W. B.)			
2520	5-p	Std. Brough.	1,145	"6-65"				3160	5-p	Sedan	\$1,595	4566	5-p	Tour. Bro'm	\$3,835
2620	5-p	Royal Bro'm	1,195	3055	4-p	Roadster	\$1,495	3055	5-p	Bro'm Vict.	1,645	4656	7-p	Sedan	3,835
2605	5-p	4d. Sedan	1,245	3215	5-p	Brougham	1,395	.....	.....	.....	.....	4731	7-p	Sed. Lim.	3,910
2605	5-p	Royal Sedan	1,295	3115	5-p	Landau Bro'm	1,395	.....	.....	.....	.....	"AA Custom"			
Series "A"				3280	5-p	Sedan	1,495	.....	.....	.....	.....	4182	2-p	Coupe	\$3,915
2600	5-p	Roadster	\$1,395	"8-85"				3760	5-p	Sedan	\$2,595	4176	4-p	Vic. Coupe	3,925
2560	5-p	Touring	1,195	3570	7-p	Touring	\$2,295	3660	5-p	Bro'm. Vict.	2,595	4340	5-p	Sedan	3,995
2720	5-p	Cab. Roadster	1,595	3910	7-p	Sedan	2,355	3800	7-p	Sedan	2,695	4090	2-4-p	Cab. Coupe	3,995
2710	5-p	DeL. Bro'm	1,395	3700	5-p	Sedan	2,355	3825	7-p	Berline	2,795	VELIE "Spec. 60"			
2860	5-p	DeL. Sedan 4d.	1,545	3950	7-p	Limousine	2,795	ROAMER "8-78"				3025	5-p	Club. Phaeton	\$1,450
NASH "Light Six"				PEERLESS "6-60"				.....	2-p	Roadster	\$1,495	3335	4-p	Coupe	1,585
2275	5-p	Touring	\$ 865	.....	2-4-p	Roadster	\$1,295	.....	4-p	Coupe	1,495	3175	5-p	Spec. Sedan	1,585
2310	2-p	Coupe	925	.....	5-p	Sedan	1,345	.....	5-p	Sedan	1,795	3350	5-p	Royal Sedan	1,635
2440	5-p	Sedan	925	"6-72"				3410	2-p	Coupe	\$1,985	(112 in. W. B.)			
2475	5-p	Sedan	995	3625	5-p	Coupe	\$2,295	3440	5-p	Brougham	1,985	.....	2-4-p	Roadster	\$1,165
.....	5-p	De Luxe Sedan	1,085	3680	5-p	Sedan	2,395	3570	5-p	Sedan	1,985	2730	3-p	Coupe	1,165
"Special Six"				"6-80"				3650	5-p	Tourer	\$2,495	2810	5-p	Sedan	1,165
2900	2-p	Roadster	\$1,115	(126½ in. W. B.)				3880	5-p	Sedan	2,985	WILLS SAINT-CLAIRE "T-6" (127 in. W. B.)			
2980	4-p	Touring	1,135	3475	2-4-p	Sp. Roadster	\$2,195	3980	7-p	Sedan	3,28	3675	5-p	Traveler	\$2,700
2980	4-p	Roadster	1,225	3400	7-p	Phaeton	1,995	ROLLS-ROYCE Manufacturers do not quote list prices.				3580	4-p	Roadster	2,700
.....	4-p	Cabriolet	1,290	3800	7-p	Sedan	2,595	1850	2-p	Conv't R'dster	\$ 550	3750	4-p	Cab. Coupe	3,350
3030	2-p	Business Coupe	1,165	3825	7-p	Limousine	2,695	1905	5-p	Touring	550	3900	5-p	Std. Sedan	3,150
3150	5-p	Sedan 2d.	1,215	3575	5-p	DeLuxe Sedan	2,795	2120	5-p	Coach	675	3970	7-p	Sedan	3,250
31															



## Prices and Weights of Current Passenger Car Models

SHIP

WT. PASS. BODY STYLE. PRICE

AUBURN

.....

2-4-p

Roadster

\$1,095

.....

5-p

Touring

1,145

3040

5-p

Sport Sedan

1,195

3080

5-p

Sedan

1,295

3040

5-p

Wanderer Se'n

1,345

.....

2-p

Roadster

\$1,395

.....

5-p

Touring

1,445

3350

5-p

Sport Sedan

1,495

3390

5-p

Sedan

1,695

3390

5-p

Wanderer Se'n

1,745

(129 in. W. B.)

3180

4-p

Sp. Roadster

\$1,995

3200

5-p

Touring

2,045

.....

7-p

Touring

2,295

3380

5-p

Sport Sedan

2,095

3450

5-p

Sedan

2,195

3450

5-p

Wanderer

2,245

(146 in. W. B.)

4200

7-p

Sedan

\$2,595

BUICK

.....

2-4-p

Roadster

\$1,195

3040

5-p

Touring

1,225

3110

2-4-p

Coupe

1,195

3215

5-p

2d. Sedan

1,195

3190

4-p

Coupe

1,275

3190

4-p

Spec. Coupe

1,275

3300

5-p

4d. Sedan

1,295

3305

5-p

Town Bro'm

1,375

(120 in. W. B.)

3800

4-p

Coupe

\$1,465

3750

5-p

2d. Sedan

1,395

3870

5-p

4d. Sedan

1,495

(128 in. W. B.)

3655

2-4-p

Sp. Roadster

\$1,495

3735

4-p

Sp. Touring

1,525

3905

3-p

Country Club

1,765

3940

5-p

Coupe

1,850

3915

3-5-p

Conv't Coupe

1,925

4050

5-p

Brough. Sedan

1,925

4115

7-p

Sedan

1,995

CADILLAC

.....

5-p

Brougham

\$2,995

4105

2-p

Coupe

3,100

4190

5-p

Victoria

3,195

4270

5-p

Sedan

3,250

4460

2-p

Sport Coupe

3,500

4590

5-p

Sport Sedan

3,650

(138 in. W. B.)

4420

7-p

Sedan

\$3,400

4480

7-p

Imperial

3,535

Custom Built

(132 in.)

4220

2-p

Roadster

\$3,850

4300

2-p

Conv't Coupe

3,450

(138 in. W. B.)

4285

7-p

Touring

\$3,450

4275

5-p

Phaeton

3,450

4705

5-p

Sp. Phaeton

3,975

4465

5-p

Coupe

3,855

4465

5-p

Sedan

3,995

4530

7-p

Suburban

4,125

4615

7-p

Imperial

4,350

CHANDLER Big Six

3200

2-4-p

Roadster

\$1,695

3330

5-p

Touring

1,545

3345

7-p

Touring

1,645

3570

5-p

20th C'y Sedan

1,495

3570

5-p

Met. Sedan

1,695

3485

4-p

Coupe

1,675

3570

5-p

De Luxe Sedan

1,695

3725

7-p

Sedan

1,895

Standard Six

(108½ in. W. B.)

2475

5-p

Touring

\$ 945

2565

5-p

De Luxe Tour.

1,005

2470

2-4-p

Sport R'dster

1,135

2685

5-p

Sedan

995

2620

2-p

Coupe

1,035

2635

5-p

De Luxe Sedan

1,095

2620

2-p

De Luxe Coupe

1,125

Special Six

(115 in. W. B.)

2890

5-p

Touring

\$1,145

2940

5-p

Sport Touring

1,295

2995

2-p

Coupe

1,195

2995

5-p

De Luxe Coupe

1,285

3230

5-p

Sedan

1,295

"Royal Str. 8"

.....

7-p

Touring

\$2,195

.....

4-p

Roadster

2,195

.....

4-p

Coupe

2,195

3760

5-p

Sedan

2,195

3870

7-p

Sedan

2,195

CHEVROLET "AA"

1890

2-p

Roadster

\$ 525

1965

5-p

Touring

525

2090

2-p

Utility Coupe

625

2190

5-p

Coach

595

2275

5-p

Sedan

695

2135

2-4-p

Cabriolet

715

2270

5-p

Landau Sedan

745

SHIP

WT. PASS. BODY STYLE. PRICE

CHRYSLER

2145

5-p

Touring

\$ 750

2025

2-p

Roadster

750

2130

2-4-p

Roadster

795

2230

2-p

Coupe

750

2235

5-p

Coach

780

2410

5-p

Sedan

830

2350

5-p

Landau Sedan

885

2570

5-p

Touring

\$1,075

2545

2-p

Roadster

1,145

2615

2-4-p

Roadster

1,175

2690

2-p

Coupe

1,125

2685

3-5-p

Coupe

1,245

2795

5-p

Coach†

1,145

2835

5-p

Sedan

1,245

2845

2-4-p

Roadster

\$1,495

2930

5-p

Phaeton

1,395

2905

5-p

Sp. Phaeton

1,495

2905

4-p

Coupe

1,695

3000

2-4-p

Royal Coupe

1,545

3090

5-p

Brougham

1,525

3150

5-p

Royal Sedan

1,595

2935

2-4-p

Cabriolet

1,745

3160

5-p

Crown Sedan

1,795

(185½ in. \*)

3765

5-p

Phaeton

\$2,495

3805

2-4-p

Roadster

2,595

4110

5-p

Coupe

3,095

.....

5-p

Sedan

3,095

4055

5-p

Sedan

3,095

(192½ in. \*)

4090

4-p

Coupe

\$2,895

4025

2-p

Cabriolet

3,495

(198½ in. \*)

.....

5-p

Sportif

\$3,995

4195

7-p

Sedan

3,295

4370

7-p

Sedan Lim.

3,595

4432

5-p

Town Car

5,495

†Cloth Upholstery. Leather at extra cost.

•Overall length.

CUNNINGHAM

4500

4-p

Sp. Touring

\$6,150

4600

7-p

Touring

6,650

4700

4-p

Coupe

7,600

5000

6-p

Limousine

8,100

DAGMAR

3750

4-p

Roadster

\$3,500

3800

4-p

Sp. Tourer

3,500

3700

4-p

Phaeton

3,500

4200

4-p

Petite Coupe

4,500

4200

4-p

Petite Sedan

4,500

4500

4-p

De Luxe Coupe

4,750

4700

5-p

Sedan

4,700

4800

7-p

Sedan

4,750

"6-60"

3150

5-p

Touring

\$1,785

3100

2-p

Roadster

1,985

3200

4-p

Sp. Touring

1,985

3500

5-p

Sedan

2,445

DAVIS

2915

5-p

Legion. Tour.

\$1,395

3000

5-p

Sedan

1,695

3055

5-p

Imperial Sedan

1,795

2350

5-p

Roadster

\$1,245

2500

5-p

Touring

1,285

2570

5-p

Sedan

1,285

2375

3-p

Coupe

1,285

2575

5-p

Imp. Sedan

1,385

"Series 98"

3050

5-p

Touring

\$1,795

3000

4-p

Polo Roadster

1,795

3150

4-p

Princess Coupe

1,865

3200

5-p

Emperor Sedan

1,885

DIANA "St. 8"

2995

5-p

Phaeton

\$1,695

2995

5-p

Roadster

1,645

2995

5-p

Palm Bch. Rds.

1,795

.....

7-p

Touring

1,995

3170

5-p

DeL. Bro'm

1,695

3275

5-p

De Luxe Sedan

1,995

3160

5-p

Cabriolet

1,995

3440

7-p

Sedan (135 in. W. B.)

2,695

3640

7-p

Berline Sedan

2,895

3640

5-p

Town Car

5,000

DODGE BROTHERS

2448

2-p

Roadster

\$ 795

2541

2-p

Spec'l Roadster

845

2574

5-p

Touring

795

2669

5-p

Spec. Touring

845

2622

2-4-p

Sport Roadster

875

.....

2-4-p

Conv't Coupe

995

2598

2-p

Coupe

845

2668

2-p

Spec. Coupe

895

2811

5-p

Sedan

895

2893

5-p

Spec. Sedan

945

2937

5-p

DeL. Sedan

1,075

SHIP

WT. PASS. BODY STYLE. PRICE

DU PONT

3700

4-p

Roadster

\$2,800

3850

5-p

Touring

2,800

3850

4-p

Coupe

3,200

4100

5-p

Sedan

3,400

4100

5-p

Conv't Sedan

3,750

ELCAR

2580

4-p

Lan. Rdster

\$1,475

2670

5-p

Brougham

1,295

2750

5-p

Sedan

1,395

"8-82"

3320

2-4-p

Land. R'dster

\$1,870

3410

5-p

Brougham

1,595

3490

5-p

Sedan

1,790

"8-90"

3675

7-p

Touring

\$2,265

3620

2-4-p

Land. R'dster

2,295

.....

2-4-p

Roadster

2,315

3710

5-p

Brougham

2,195

3895

5-p

Sedan

2,465

4245

7-p

Sedan

2,765

ERSKINE

2300

5-p

Tourer

\$ 945

.....

2-p

Coupe

945

2400

5-p

Sedan

995

.....

2-4-p

Cust. Coupe

995

ESSEX

.....

4-p

Speedster

\$ 785

.....

2-p

Speedster

700

2450

5-p

Coach

735

2340

2-p

Coupe

735

2530

5-p

Sedan 4d.

795

FALCON KNIGHT

.....

.....

Roadster

.....

.....

.....

Touring

.....

.....

.....

Coupe

.....

.....

.....

Landau

.....

.....

5-p

Brougham

\$ 995

.....

5-p

Sedan

1,095

FLINT

2450

5-p

Coach

\$ 795

2580

5-p

DeL. Coach

895

"60"

2750

5-p

Touring

\$1,250

2885

4-p

Sp. Roadster

1,350

2890

4-p

Coupe Rdster

1,395

3030

5-p

Sedan 4d.

1,395

3010

5-p

Brougham

1,395

(120 in. W. B.)

3245

5-p

Touring

\$1,450

3395

4-p

Sp. Touring

1,595

3500

4-p

Coupe

1,795

3625

5-p

Sedan

1,850

(130 in. W. B.)

3470

7-p

Touring

\$1,595

3780

7-p

Sedan

2,050

FORD

1658

2-p

Runabout

\$ 360

1732

5-p

Touring

380

1820

2-p

Coupe

485

1950

5-p

Tudor Sedan

495

2002

5-p

Fordor Sedan

545

FRANKLIN

3015

3-p

Sport. Road.

\$2,690

2975

5-p

Touring

2,635

3105

3-p

Coupe

2,490

3150

3-5-p

Coupe

2,565

3230

5-p

Sedan

2,790

3165

4-p

Victoria

2,740

3230

5-7-p

Sedan

2,840

3230

5-p

Oxford Sedan

2,815

3305

4-p

Sp. Sedan

2,910

3360

7-p

Limousine

2,990

.....

.....

Collap. Coupe

2,925

.....

.....

Tandem Sport

3,150

GARDNER

2900

4-p

Roadster

\$1,395

2900

4-p

Roadster DeL.

1,495

3370

5-p

Sedan

1,695

3370

5-p

Sedan DeL.

1,795

"90"

3450

4-p

Roadster

\$1,995

3475

4-p

Landau Rdstr.

2,295

3690

5-p

Brougham

2,295

3730

5-p

Sedan

2,295

3690

5-p

Victoria

2,295

HUDSON

3505

5-p

Coach

\$1,285

3620

5-p

Sedan

1,385

"Custombuilt"

.....

7-p

Phaeton

\$1,600

3660

4-p

Roadster

1,500

3870

7-p

Brougham

1,575

3755

5-p

Sedan

1,750

HUPMOBILE

2620

5-p

Touring

\$1,325

2660

2-4-p

Roadster

1,385

2800

5-p

Sedan

1,385

2800

2-4-p

Coupe

1,385

2890

5-p

Brougham

1,385

SHIP

WT. PASS. BODY STYLE. PRICE

"E-3"

3300

5-p

Touring

\$1,945

3360

7-p

Touring

2,045

3355

2-4-p

Roadster

2,045

3465

2-4-p

Coupe

2,345

3515

5-p

Brougham

2,245

3545

5-p

Sedan

2,345

3525

5-p

Victoria

2,345

3360

7-p

Sedan

2,495

3360

7-p

Sedan Lim.

2,595

JORDAN

.....

4-p

Sport Salon

\$1,595

.....

2-4-p

Tomboy

1,595

.....

5-p

Sedan

1,595

"J-1"

2915

4-p

Playboy Road.

\$1,545

3070

2-4-p

Sport Coupe

1,695

3200

4-p

Cus. Victoria

1,695

3200

5-p

Cus. Sedan

1,695

Series "AA"

3470

5-p

Cus. Sedan

\$2,495

3470

4-p

Cus. Victoria

2,495

KISSEL

.....

6-55"

(124 in. W. B.)

3020

5-p

Phaeton

\$1,685

3160

4-p

Speedster

1,895

3483

4-p

Coupe R'dster

1,895

3300

5-p

Brougham

1,695

3486

5-p

Spec. Bro'm

1,795

3440

5-p

Bro'm Sedan

1,895

3378

5-p

Conv't Bro'm

2,295

(131 in. W. B.)

3660

7-p

Touring

\$1,785

3225

4-p

Tourster

1,895

3596

5-p

Spec. Bro'm Sedan

2,095

3770

7-p

Sedan

2,295

"8-65"

(125 in. W. B.)

3240

5-p

Phaeton

\$1,855

3155

4-p

Speedster

2,095

3348

4-p

Coupe R'dster

2,095

3330

5-p

Brougham

1,895

3345

5-p

Spec. Bro'm

1,995

3400

5-p

Bro'm Sedan

2,095

3518

5-p

Conv't Bro'm

2,495

(132 in. W. B.)

3360

7-p

Touring

\$1,945

3155

4-p

Tourster

2,095

3455

5-p

Spec. Bro'm Sedan

2,295

3630

7-p

Sedan

2,495

"8-75"

(131 in. W. B.)

3220

5-p

Phaeton

\$2,185

3260

4-p

Speedster

2,395

3578

4-p

Coupe R'dster

2,395

3671

5-p

Brougham

2,195

3760

5-p

Spec. Bro'm Sedan

2,295

3863

5-p

Conv't Bro'm Sedan

2,

# Prices and Weights of Current Passenger Car Models

SHIP				SHIP				SHIP				SHIP			
WT. PASS. BODY STYLE. PRICE				WT. PASS. BODY STYLE. PRICE				WT. PASS. BODY STYLE. PRICE				WT. PASS. BODY STYLE. PRICE			
LOCOMOBILE—Continued				OAKLAND "6"				"6-90"				STEARNS-KNIGHT "F 6-85"			
"48"				"30E"				(133½ in. W. B.)				"G-885"			
5030	4-p	Sportif	\$ 7,460	2500	5-p	Touring	\$1,025	.....	5-p	Phaeton	\$1,695	4185	4-p	Roadster	\$3,250
5330	7-p	Touring	7,460	2590	4-p	Sp. Roadster	1,175	.....	2-4-p	Sport Roadster	1,695	4285	4-p	Touring	3,250
5640	7-p	Touring Lim.	9,500	2620	5-p	Sp. Phaeton	1,095	3260	4-p	Coupe	1,725	4250	4-p	Cab-Roadster	3,450
5600	5-p	Victoria Sed.	10,050	2745	5-p	2d. Sedan	1,095	.....	4-p	Sedan	1,895	4407	4-p	Coupe	3,350
5464	6-p	Brougham	10,040	2705	3-p	Landau Coupe	1,125	3410	5-p	Sedan	1,895	4515	5-p	Std. Sedan	3,350
5868	7-p	Enc. Dr. Lim.	10,050	2855	5-p	4d. Sedan	1,195	3460	5-p	Landaulet	1,995	4640	7-p	Sedan	3,550
5624	7-p	Cabriolet	10,300	2885	5-p	Landau Sedan	1,295	.....	.....	.....	.....	4650	5-p	Std. Sedan Lim.	3,550
McFARLAN "TV"				OLDSMOBILE				(133½ in. W. B.)				Sedan Lim.			
4000	2-p	Roadster	\$5,400	2335	5-p	Touring	\$ 875	3850	2-4-p	Roadster	\$2,995	4800	7-p	Sedan	3,750
4600	4-p	Sp. Touring	5,600	2490	5-p	Sp. Touring	980	.....	7-p	Sedan	3,095	"G-885"			
4900	4-p	Coupe	6,720	2317	4-p	DeL. Roadster	975	4125	5-p	Sedan	3,495	.....	4-p	Roadster	\$3,850
5200	4-p	Tour. Sedan	6,720	2450	2-p	Coupe	925	4200	7-p	Sedan	3,595	4580	4-p	Touring	3,850
5200	7-p	Tour. Sedan	6,810	2570	5-p	Coach	950	4275	5-p	Ber. Limousine	3,795	4600	4-p	Cab. Roadster	4,250
.....	6-p	Sedan	6,720	2538	2-p	DeLuxe Coupe	990	.....	5-p	Coupe	\$2,795	.....	4-p	Coupe	4,250
.....	7-p	Sedan	6,810	2650	4-p	Sport Coupe	1,035	4050	5-p	Sedan	2,995	.....	5-p	Sedan	4,350
.....	7-p	Spec. Sedan	6,810	2720	4-p	DeLuxe Coach	1,050	.....	.....	.....	.....	4925	7-p	Sedan	4,450
.....	7-p	Enc. Sedan	7,110	2625	5-p	Sedan	1,025	PIERCE-ARROW				.....	7-p	Limousine	4,650
.....	7-p	Sub. Sedan	7,110	2780	5-p	DeLuxe Sedan	1,125	"80"				.....	5-p	Sedan Lim.	4,550
5200	7-p	Town Car	9,000	2885	5-p	Landau	1,190	Runabout				STUDEBAKER			
"Straight 8"				OVERLAND				Phaeton				Standard Six			
3400	2-p	Roadster	\$2,650	"4 Whippet"				Phaeton				Du. Roadster			
3400	5-p	Touring	2,650	1985	5-p	Touring	\$ 625	Brougham				Sport Roadster			
3450	7-p	Touring	2,750	1930	2-4-p	Roadster	695	Brougham				Du. Phaeton			
3400	4-p	Roadster	3,050	2025	2-p	Coupe	625	Coupe				Country Club			
3650	5-p	Sedan	3,180	2075	5-p	Coach	625	Club Sedan				Coach			
3650	5-p	Sub. Sedan	3,380	2185	5-p	Sedan	725	Club Sed. Land.				Sedan			
3700	7-p	Sedan	3,280	2230	5-p	Landau	755	Enc. Dr. Lim.				Custom Sedan			
3700	7-p	Sub. Sedan	3,480	.....	.....	.....	.....	.....				Cus. Victoria			
3650	4-p	Coupe	3,180	2270	5-p	Touring	\$ 765	.....				Special Six			
3750	5-p	Brough. Coach	3,180	2225	2-4-p	Roadster	825	.....				Sp. Roadster			
MARMON				2305	2-p	Coupe	795	.....				Du. Phaeton			
"Little Marmon"				2405	5-p	Coach	795	.....				Coach			
3019	2-p	Speedster	\$1,895	2440	5-p	Sedan	875	.....				Brougham			
2977	4-p	Speedster	1,965	2490	5-p	Landau	925	.....				.....			
3054	2-p	Coupe Rdster	1,995	PACKARD "6"				.....				.....			
3053	2-p	Coupe	1,895	3545	4-p	Roadster	\$2,350	.....				.....			
3039	2-p	Sedan 2d.	1,795	3590	5-p	Phaeton	2,250	.....				.....			
3092	4-p	Sedan 4d.	1,895	3925	5-p	Sedan	2,250	.....				.....			
.....	4-p	Brougham	1,895	(133 in. W. B.)				.....				.....			
3119	5-p	Cus. Sedan 2W	2,595	3790	7-p	Touring	\$2,785	.....				.....			
3172	5-p	Cus. Sedan 3W	2,595	3925	4-p	Coupe	2,685	.....				.....			
3116	4-p	Cus. Victoria	2,595	4070	7-p	Sedan	2,785	.....				.....			
3040	4-p	Cus. Town Cab	3,125	4015	5-p	Club Sedan	2,725	.....				.....			
"E-75"				4130	7-p	Sedan Lim.	2,885	.....				.....			
4251	2-p	Speedster	\$3,485	"8"				.....				.....			
4256	4-p	Speedster	3,485	(136 in. W. B.)				.....				.....			
4017	5-p	Phaeton	3,485	4110	4-p	Runabout	\$3,850	.....				.....			
4480	7-p	Tour. Speedster	3,565	4130	5-p	Phaeton	3,750	.....				.....			
4374	2-p	Coupe R'dster	3,565	4475	4-p	Coupe	4,750	.....				.....			
4452	5-p	Town Coupe	3,195	4430	5-p	Sedan	4,750	.....				.....			
4373	2-p	Coupe	3,485	(143 in. W. B.)				.....				.....			
4346	4-p	Victoria	3,485	4250	7-p	Touring	\$3,950	.....				.....			
4525	5-p	Brougham	3,565	4550	5-p	Club Sedan	4,890	.....				.....			
4498	5-p	Sedan	3,565	4660	7-p	Sedan	5,000	.....				.....			
4620	7-p	Sedan	3,640	4700	7-p	Sedan Lim.	5,100	.....				.....			
4515	5-p	Custom Sedan	3,960	PAIGE "6-45"				.....				.....			
4678	7-p	Custom Sedan	4,075	.....	5-p	Touring	\$1,095	.....				.....			
4718	7-p	Custom Lim.	4,175	2660	5-p	Brougham	1,095	.....				.....			
MOON				2615	4-p	Cab R'dster	1,295	.....				.....			
"6-60"				2525	2-p	Coupe	1,095	.....				.....			
2295	3-p	Roadster	\$ 995	2760	5-p	Sedan	1,195	.....				.....			
2340	5-p	Phaeton	995	(125 in. W. B.)				.....				.....			
2330	3-5-p	DeL. Roadster	1,095	3420	7-p	Touring	\$1,655	.....				.....			
2330	3-5-p	Roy. Roadster	1,195	3540	4-p	Cab Roadster	1,995	.....				.....			
2575	3-5-p	Cab. Roadster	1,195	3550	5-p	Sedan	1,695	.....				.....			
2575	3-5-p	Roy. Cab.	.....	3550	4-p	Coupe	1,995	.....				.....			
2420	5-p	Coach	1,295	3765	7-p	Sedan	1,995	.....				.....			
2520	5-p	Std. Brough.	1,045	3805	7-p	Limousine	2,145	.....				.....			
2620	5-p	Royal Bro'm	1,145	"6-65"				.....				.....			
2605	5-p	4d. Sedan	1,195	(115 in. W. B.)				.....				.....			
2605	5-p	Royal Sedan	1,245	3055	4-p	Roadster	\$1,495	.....				.....			
2605	5-p	Royal Sedan	1,295	3215	5-p	Brougham	1,395	.....				.....			
Series "A"				3115	5-p	Landau Bro'm	1,395	.....				.....			
2600	5-p	Roadster	\$1,395	3280	5-p	Sedan	1,495	.....				.....			
2560	5-p	Touring	1,195	"8-85"				.....				.....			
2720	5-p	Cab. Roadster	1,595	3570	7-p	Touring	\$2,295	.....				.....			
2710	5-p	DeL. Bro'm	1,395	3700	5-p	Sedan	2,355	.....				.....			
2860	5-p	DeL. Sedan 4d.	1,545	3910	7-p	Sedan	2,655	.....				.....			
NASH				3690	4-p	Cab Rdster.	2,655	.....				.....			
"Light Six"				3700	4-p	Coupe	2,655	.....				.....			
2275	5-p	Touring	\$ 865	3950	7-p	Limousine	2,795	.....				.....			
2310	2-p	Coupe	925	PEERLESS				.....				.....			
2440	5-p	Sedan	925	"6-60"				.....				.....			
2475	5-p	Sedan	995	.....	2-4-p	Roadster	\$1,295	.....				.....			
.....	5-p	De Luxe Sedan	1,085	.....	2-4-p	Coupe R'dster	1,345	.....				.....			
"Special Six"				.....	5-p	Sedan	1,345	.....				.....			
2900	2-p	Roadster	\$1,115	(126½ in. W. B.)				.....				.....			
2980	5-p	Touring	1,135	3625	5-p	Coupe	\$2,295	.....				.....			
2980	4-p	Roadster	1,225	3680	5-p	Sedan	2,395	.....				.....			
.....	4-p	Cabriolet	1,290	133½ in. W. B.)				.....				.....			
3030	2-p	Business Coupe	1,165	3475	2-4-p	Sp. Roadster	\$2,195	.....				.....			
3150	5-p	Sedan 2d.	1,215	3400	7-p	Phaeton	1,995	.....				.....			
3179	5-p	Sedan	1,315	3800	7-p	Sedan	2,595	.....				.....			
3250	5-p	Spec. Sedan	1,485	3825	7-p	Sedan	2,595	.....				.....			
.....	5-p	Caval. Sed.	1,695	3575	5-p	Limousine	2,695	.....				.....			
"Advanced Six"				3625	5-p	Coupe	\$2,295	.....				.....			
(121 in. W. B.)				3680	5-p	Sedan	2,395	.....				.....			
3390	4-p	Roadster	\$1,475	133½ in. W. B.)				.....				.....			
3400	5-p	Touring	1,340	3400	2-4-p	Sp. Roadster	\$2,195	.....				.....			
3550	5-p	Sedan 2d.	1,425	3800	7-p	Phaeton	1,995	.....				.....			
3650	5-p	Sedan	1,525	3825	7-p	Sedan	2,595	.....				.....			
3650	5-p	Spec. Sedan	1,695	3825	7-p	Sedan	2,595	.....				.....			
.....	5-p	Coupe	1,775	3575	5-p	Limousine	2,695	.....				.....			
(127 in. W. B.)				3650	7-p	DeLuxe Sedan	2,995	.....				.....			
3480	7-p	Touring	\$1,490	2950	5-p	Phaeton	\$1,395	.....				.....			
3640	4-p	Victoria	1,540	3025	5-p	Roadster	1,495	.....				.....			
3750	5-p	Coupe	1,990	3120	2-4-p	Coupe Roadster	1,565	.....				.....			
.....	5-p	Amb. Sed.	2,090	3100	5-p	Coupe	1,565	.....				.....			
3830	7-p	Sedan	2,090	3290	5-p	Std. Sedan	1,395	.....				.....			
"Star"				.....	5-p	Sport Sedan	1,795	.....				.....			
"4"				3140	5-p	DeLuxe Sedan	1,795	.....				.....			
"6"				.....	.....	.....	.....	.....				.....			
"8"				.....	.....	.....	.....	.....				.....			
"10"				.....	.....	.....	.....	.....				.....			
"12"				.....	.....	.....	.....	.....				.....			
"14"				.....	.....	.....	.....	.....				.....			
"16"				.....	.....	.....	.....	.....				.....			
"18"				.....	.....	.....	.....	.....				.....			
"20"				.....	.....	.....	.....	.....				.....			
"22"				.....	.....	.....	.....	.....				.....			
"24"				.....	.....	.....	.....	.....				.....			
"26"				.....	.....	.....	.....	.....				.....			
"28"				.....	.....	.....	.....	.....				.....			
"30"				.....	.....	.....	.....	.....				.....			
"32"				.....	.....	.....	.....	.....				.....			
"34"				.....	.....	.....	.....	.....				.....			
"36"				.....	.....	.....	.....	.....				.....			
"38"				.....	.....	.....	.....	.....				.....			
"40"				.....	.....	.....	.....	.....				.....			
"42"				.....	.....	.....	.....	.....				.....			
"44"				.....	.....	.....	.....	.....				.....			
"46"				.....	.....	.....	.....	.....				.....			
"48"				.....	.....	.....	.....	.....				.....			
"50"				.....	.....</										



# Mechanical Specifications of Current Passenger Car Models

This list comprises cars distributed on a national basis

MAKE AND MODEL	Wheel Base (Inches)	Type Size	Decimals-Balloons	Make and Model	Bore and Stroke	Rated H.P.	Piston Displacement	Valve Arrangement	Camshaft Drive	Piston Material	No. Main Bear.	Crankshaft Vibration	Oil Cleaner?	Cooling System	Thermometer?	Radiator	Carburetor	Air Cleaner?	ELECTRICAL SYSTEM			Clutch—Type and Make	Gear Set—Make	Underparts—Type and Make	REAR AXLE		BRAKES		Steering Gear—Type and Make	Rear Springs—Type and Make	Chassis and Make	ABBREVIATIONS— NAMES OF MFRS. OF STOCK PARTS
Auburn... 6-66	120	29x5.25	120	Con... 28L	6-27x4 1/4	19.8	185	T	Ch. Cl.	Cl.	4	Y	PK	Pu.	N	N	Sch...	N	N	D-R...	D-R...	P. Long.	War...	m-U.P.	Col.	4.9	B.P.	E-T	Ros	S-50 1/2	Pr-Al	A-K
Auburn... 8-77	125	29x5.25	125	Lye... 4HM	8-31x4 1/4	24.2	226	T	Ch. Cl.	Cl.	5	Y	PK	Pu.	N	N	Sch...	N	N	D-R...	D-R...	P. Long.	War...	m-U.P.	Col.	4.7	B.P.	E-T	Ros	S-50 1/2	Pr-Al	A-K
Buick... 115	120-140	31x6.00	120	Lye... 4HM	8-31x4 1/4	23.4	226	T	Ch. Cl.	Cl.	5	Y	PK	Pu.	N	N	Sch...	N	N	D-R...	D-R...	P. Long.	War...	m-U.P.	Col.	4.7	B.P.	E-T	Ros	S-50 1/2	Pr-Al	A-K
Buick... 120 & 128	120-128	31x6.00	120	Lye... 4HM	8-31x4 1/4	23.4	226	T	Ch. Cl.	Cl.	5	Y	PK	Pu.	N	N	Sch...	N	N	D-R...	D-R...	P. Long.	War...	m-U.P.	Col.	4.7	B.P.	E-T	Ros	S-50 1/2	Pr-Al	A-K
Cadillac... 314	132-138	33x6.75	132	Own... 314	8-31x4 1/4	31.2	274	T	Ch. Cl.	Cl.	4	Y	PK	Pu.	N	N	Sch...	N	N	D-R...	D-R...	P. Long.	War...	m-U.P.	Col.	4.9	B.P.	E-T	Ros	S-50 1/2	Pr-Al	A-K
Chandler... Big 6	124	33x6.00	124	Own... Big 6	6-31x4 1/4	29.4	289	T	Ch. Cl.	Cl.	4	Y	PK	Pu.	N	N	Sch...	N	N	D-R...	D-R...	P. Long.	War...	m-U.P.	Col.	4.9	B.P.	E-T	Ros	S-50 1/2	Pr-Al	A-K
Chandler... Std. 6	108 1/2	30x5.00	108 1/2	Own... Std. 6	6-31x4 1/4	21.6	180	T	Ch. Cl.	Cl.	4	Y	PK	Pu.	N	N	Sch...	N	N	D-R...	D-R...	P. Long.	War...	m-U.P.	Col.	4.9	B.P.	E-T	Ros	S-50 1/2	Pr-Al	A-K
Chandler... Spec. 8	115	31x5.25	115	Own... Spec. 8	8-31x4 1/4	33.8	314	T	Ch. Cl.	Cl.	5	Y	PK	Pu.	N	N	Sch...	N	N	D-R...	D-R...	P. Long.	War...	m-U.P.	Col.	4.9	B.P.	E-T	Ros	S-50 1/2	Pr-Al	A-K
Chandler... Royal St. 8	124	32x6.00	124	Own... Royal St. 8	8-31x4 1/4	33.8	314	T	Ch. Cl.	Cl.	5	Y	PK	Pu.	N	N	Sch...	N	N	D-R...	D-R...	P. Long.	War...	m-U.P.	Col.	4.9	B.P.	E-T	Ros	S-50 1/2	Pr-Al	A-K
Chevrolet... AA	103	29x4.40	103	Own... Cap	4-31x4 1/4	21.8	171	T	Ch. Cl.	Cl.	4	Y	PK	Pu.	N	N	Sch...	N	N	D-R...	D-R...	P. Long.	War...	m-U.P.	Col.	4.9	B.P.	E-T	Ros	S-50 1/2	Pr-Al	A-K
Chrysler... "90"	185-192 1/2	30x6.75	185	Own...	6-31x4 1/4	29.4	288	T	Ch. Cl.	Cl.	7	Y	PK	Pu.	N	N	Sch...	N	N	D-R...	D-R...	P. Long.	War...	m-U.P.	Col.	4.9	B.P.	E-T	Ros	S-50 1/2	Pr-Al	A-K
Chrysler... "90"	185	29x4.75	185	Own...	6-31x4 1/4	21.0	170	T	Ch. Cl.	Cl.	6	Y	PK	Pu.	N	N	Sch...	N	N	D-R...	D-R...	P. Long.	War...	m-U.P.	Col.	4.9	B.P.	E-T	Ros	S-50 1/2	Pr-Al	A-K
Chrysler... "90"	185	29x4.75	185	Own...	6-31x4 1/4	21.0	170	T	Ch. Cl.	Cl.	6	Y	PK	Pu.	N	N	Sch...	N	N	D-R...	D-R...	P. Long.	War...	m-U.P.	Col.	4.9	B.P.	E-T	Ros	S-50 1/2	Pr-Al	A-K
Cunningham... V-7	132-142	32x6.00	132	Own... V-7	8-31x4 1/4	23.4	218	L	Ch. Cl.	Cl.	7	Y	PK	Pu.	N	N	Sch...	N	N	D-R...	D-R...	P. Long.	War...	m-U.P.	Col.	4.9	B.P.	E-T	Ros	S-50 1/2	Pr-Al	A-K
Daimler... 6-70	135	33x5.00	135	Con... 6-70	6-31x4 1/4	23.4	218	L	Ch. Cl.	Cl.	7	Y	PK	Pu.	N	N	Sch...	N	N	D-R...	D-R...	P. Long.	War...	m-U.P.	Col.	4.9	B.P.	E-T	Ros	S-50 1/2	Pr-Al	A-K
Daimler... 8-70	135	33x5.00	135	Con... 8-70	8-31x4 1/4	23.4	218	L	Ch. Cl.	Cl.	7	Y	PK	Pu.	N	N	Sch...	N	N	D-R...	D-R...	P. Long.	War...	m-U.P.	Col.	4.9	B.P.	E-T	Ros	S-50 1/2	Pr-Al	A-K
DeSoto... 94-27	110	29x4.00	110	Con... 94-27	6-31x4 1/4	18.5	165	L	Ch. Cl.	Cl.	4	Y	PK	Pu.	N	N	Sch...	N	N	D-R...	D-R...	P. Long.	War...	m-U.P.	Col.	4.9	B.P.	E-T	Ros	S-50 1/2	Pr-Al	A-K
DeSoto... Series 98	110	29x4.00	110	Con... Series 98	6-31x4 1/4	18.5	165	L	Ch. Cl.	Cl.	4	Y	PK	Pu.	N	N	Sch...	N	N	D-R...	D-R...	P. Long.	War...	m-U.P.	Col.	4.9	B.P.	E-T	Ros	S-50 1/2	Pr-Al	A-K
Dodge Brothers... St. 8	118 1/2	32x6.00	118 1/2	Own... St. 8	8-31x4 1/4	23.4	218	L	Ch. Cl.	Cl.	7	Y	PK	Pu.	N	N	Sch...	N	N	D-R...	D-R...	P. Long.	War...	m-U.P.	Col.	4.9	B.P.	E-T	Ros	S-50 1/2	Pr-Al	A-K
Dodge Brothers... E	125	32x6.00	125	Own... E	8-31x4 1/4	23.4	218	L	Ch. Cl.	Cl.	7	Y	PK	Pu.	N	N	Sch...	N	N	D-R...	D-R...	P. Long.	War...	m-U.P.	Col.	4.9	B.P.	E-T	Ros	S-50 1/2	Pr-Al	A-K
Edsel Ford... 6-70	117	28x5.25	117	Own... 6-70	6-31x4 1/4	17.3	145	L	Ch. Cl.	Cl.	4	Y	PK	Pu.	N	N	Sch...	N	N	D-R...	D-R...	P. Long.	War...	m-U.P.	Col.	4.9	B.P.	E-T	Ros	S-50 1/2	Pr-Al	A-K
Edsel Ford... 8-82	123	30x6.00	123	Own... 8-82	8-31x4 1/4	23.4	218	L	Ch. Cl.	Cl.	5	Y	PK	Pu.	N	N	Sch...	N	N	D-R...	D-R...	P. Long.	War...	m-U.P.	Col.	4.9	B.P.	E-T	Ros	S-50 1/2	Pr-Al	A-K
Edsel Ford... 8-90	127-132	30x6.00	127	Own... 8-90	8-31x4 1/4	23.4	218	L	Ch. Cl.	Cl.	5	Y	PK	Pu.	N	N	Sch...	N	N	D-R...	D-R...	P. Long.	War...	m-U.P.	Col.	4.9	B.P.	E-T	Ros	S-50 1/2	Pr-Al	A-K
Erskine... Super Six	107 1/2	31x5.00	107 1/2	Own... Super Six	6-31x4 1/4	17.3	145	L	Ch. Cl.	Cl.	4	Y	PK	Pu.	N	N	Sch...	N	N	D-R...	D-R...	P. Long.	War...	m-U.P.	Col.	4.9	B.P.	E-T	Ros	S-50 1/2	Pr-Al	A-K
Erskine... Super Six	107 1/2	31x5.00	107 1/2	Own... Super Six	6-31x4 1/4	17.3	145	L	Ch. Cl.	Cl.	4	Y	PK	Pu.	N	N	Sch...	N	N	D-R...	D-R...	P. Long.	War...	m-U.P.	Col.	4.9	B.P.	E-T	Ros	S-50 1/2	Pr-Al	A-K
Falcon-Knight... Z-18	109 1/2	30x5.25	109 1/2	Con... Z-18	6-31x4 1/4	18.1	157	L	Ch. Cl.	Cl.	7	Y	PK	Pu.	N	N	Sch...	N	N	D-R...	D-R...	P. Long.	War...	m-U.P.	Col.	4.9	B.P.	E-T	Ros	S-50 1/2	Pr-Al	A-K
Flint... 60	115	30x5.77	115	Con... 60	6-31x4 1/4	25.3	230	L	Ch. Cl.	Cl.	7	Y	PK	Pu.	N	N	Sch...	N	N	D-R...	D-R...	P. Long.	War...	m-U.P.	Col.	4.9	B.P.	E-T	Ros	S-50 1/2	Pr-Al	A-K
Flint... 80	120-130	32x6.20	120	Con... 80	8-31x4 1/4	27.3	268	L	Ch. Cl.	Cl.	7	Y	PK	Pu.	N	N	Sch...	N	N	D-R...	D-R...	P. Long.	War...	m-U.P.	Col.	4.9	B.P.	E-T	Ros	S-50 1/2	Pr-Al	A-K
Franklin... 11-B	119	32x6.00	119	Own... 11-B	6-31x4 1/4	25.3	230	L	Ch. Cl.	Cl.	7	Y	PK	Pu.	N	N	Sch...	N	N	D-R...	D-R...	P. Long.	War...	m-U.P.	Col.	4.9	B.P.	E-T	Ros	S-50 1/2	Pr-Al	A-K
Gardner... 80	122	30x6.00	122	Own... 80	8-31x4 1/4	24.2	226	L	Ch. Cl.	Cl.	5	Y	PK	Pu.	N	N	Sch...	N	N	D-R...	D-R...	P. Long.	War...	m-U.P.	Col.	4.9	B.P.	E-T	Ros	S-50 1/2	Pr-Al	A-K
Gardner... Super 6	127 1/2	31x6.00	127 1/2	Own... Super 6	6-31x4 1/4	23.4	218	L	Ch. Cl.	Cl.	4	Y	PK	Pu.	N	N	Sch...	N	N	D-R...	D-R...	P. Long.	War...	m-U.P.	Col.	4.9	B.P.	E-T	Ros	S-50 1/2	Pr-Al	A-K
Hupmobile... 114	125	30x5.25	125	Own... 114	8-31x4 1/4	23.4	218	L	Ch. Cl.	Cl.	4	Y	PK	Pu.	N	N	Sch...	N	N	D-R...	D-R...	P. Long.	War...	m-U.P.	Col.	4.9	B.P.	E-T	Ros	S-50 1/2	Pr-Al	A-K
Hupmobile... E-3	107	28x5.25	107	Con... E-3	6-31x4 1/4	17.3	145	L	Ch. Cl.	Cl.	4	Y	PK	Pu.	N	N	Sch...	N	N	D-R...	D-R...	P. Long.	War...	m-U.P.	Col.	4.9	B.P.	E-T	Ros	S-50 1/2	Pr-Al	A-K
Jordan... AA	125 1/2	32x6.00	125 1/2	Con... AA	8-31x4 1/4	26.4	247	L	Ch. Cl.	Cl.	5	Y	PK	Pu.	N	N	Sch...	N	N	D-R...	D-R...	P. Long.	War...	m-U.P.	Col.	4.9	B.P.	E-T	Ros	S-50 1/2	Pr-Al	A-K
Jordan... J-1	116	32x6.00	116	Con... J-1	8-31x4 1/4	26.4	247	L	Ch. Cl.	Cl.	5	Y	PK	Pu.	N	N	Sch...	N	N	D-R...	D-R...	P. Long.	War...	m-U.P.	Col.	4.9	B.P.	E-T	Ros	S-50 1/2	Pr-Al	A-K
Kissel... 6-55	124	32x6.00	124	Own... 6-55	6-31x4 1/4	26.3	246	L	Ch. Cl.	Cl.	3	Y	PK	Pu.	N	N	Sch...	N	N	D-R...	D-R...	P. Long.	War...	m-U.P.	Col.	4.9	B.P.	E-T	Ros	S-50 1/2	Pr-Al	A-K
Kissel... 8-65	125-132	32x6.00	125	Own... 8-65	8-31x4 1/4	26.3	246	L	Ch. Cl.	Cl.	5	Y	PK	Pu.	N	N	Sch...	N	N	D-R...	D-R...	P. Long.	War...	m-U.P.	Col.	4.9	B.P.	E-T	Ros	S-50 1/2	Pr-Al	A-K
Kissel... 8-75	131-139	33x6.00	131	Own... 8-75	8-31x4 1/4	32.6	287	L	Ch. Cl.	Cl.	5	Y	PK	Pu.	N	N	Sch...	N	N	D-R...	D-R...	P. Long.	War...	m-U.P.	Col.	4.9	B.P.	E-T	Ros	S-50 1/2	Pr-Al	A-K
La Salle... 126	126	33x6.75	126	Own... 126	8-31x4 1/4	36.4	358	L	Ch. Cl.	Cl.	5	Y	PK	Pu.	N	N	Sch...	N	N	D-R...	D-R...	P. Long.	War...	m-U.P.	Col.	4.9	B.P.	E-T	Ros	S-50 1/2	Pr-Al	A-K
Lincoln... 8	136	33x6.75	136	Own... 8	8-31x4 1/4	36.4	358	L	Ch. Cl.	Cl.	5	Y	PK	Pu.	N	N	Sch...	N	N	D-R...	D-R...	P. Long.	War...	m-U.P.	Col.	4.9	B.P.	E-T	Ros	S-50 1/2	Pr-Al	A-K

(Continued on page 70)

# Check this Yourself



The car owner is interested in brake design.

He has come to know that brake effectiveness depends upon design.

Hundreds of thousands of owners whose cars are equipped with Lockheed Hydraulics have made all America conscious of the superiority of the hydraulic principle in braking.

Talk to owners. Note the *positive* enthusiasm of the man who drives a job equipped with Lockheed Hydraulics.

Compare his attitude with that of him who drives a car equipped with any other type of four wheel brakes.

The latter is *passive*. He is very likely to tell you that he prefers the hydraulic type of brake.

*The fact is, that careful investigation has shown indisputably that thousands of people now driving cars equipped with other kinds of brakes have determined that their next car will be equipped with Lockheed Hydraulics.*

It is because of their sensible compliance with public demand that so many automobile and truck manufacturers have already adopted four-wheel brakes and why others are now considering their early adoption.

## LOCKHEED HYDRAULIC *Four* BRAKES *Wheel*

THE HYDRAULIC BRAKE COMPANY  
DETROIT • MICHIGAN • U. S. A.



### Mechanical Specifications of Current Passenger Car Models—Continued (From page 68)

MAKE AND MODEL			ENGINE										ELECTRICAL SYSTEM		REAR AXLE		BRAKES		Rear Springs—Type and Length		ABBREVIATIONS—NAMES OF MFRS. OF STOCK PARTS										
(Wheel Base)	(Inches)	Displacement	Model and Name	Number of Cyls.	Rated H.P.	Valve Arrangement	Camshaft Drive	Piston Material	No. Main Bearings	Crankshaft Vibration Damper	Oiling System	Cooling System	Thermostat	Radiator Shutters	Carburetor	Make	Air Cleaner?	Ignition System	Generator and Starter Make	Clutch—Type and Make	Gear Set—Make	Universal—Type and Make	Type and Make	Gear Ratio	Foot—Type and Location	Hand—Type and Location	Wheel Type	Steering Gear—Make	Length	Chassis Lubrication—Type and Make	
8-66	124	30x5.77	Own, 8-P	8-3x4x4	25.3	199	I	Ch. Al.	9	Y	P	Pu.	Y	N	N	Str.	DeLo.	Y	DeLo.	P. Spl.	War	m-U.M.	1/4	4.7	1-F	1-R	Se	Ross.	8-55 1/2	Pr-Ze	A-K
8-80	130	32x6.00	Own, 8-P	8-3x4x4	33.8	229	I	Ch. Al.	9	Y	P	Pu.	Y	N	N	Str.	DeLo.	Y	DeLo.	P. Spl.	War	m-U.M.	1/4	4.8	1-F	1-R	Se	Ross.	8-58 1/2	Pr-Ze	A-L
8-80	142	33x6.75	Own, 8-P	8-3x4x4	48.6	255	I	Ch. Al.	9	Y	P	Pu.	Y	N	N	Str.	DeLo.	Y	DeLo.	P. Spl.	War	m-U.M.	1/4	4.8	1-F	1-R	Se	Ross.	8-60 1/2	Pr-Ze	A-L
8-80	138	33x6.75	Own, 8-P	8-3x4x4	36.0	372	I	Ch. Al.	9	Y	P	Pu.	Y	N	N	Str.	DeLo.	Y	DeLo.	P. Spl.	War	m-U.M.	1/4	4.5	1-F	1-R	Se	Ross.	8-60 1/2	Pr-Ze	A-L
8-80	116	29x5.25	Own, 8-P	8-3x4x4	24.2	140	I	Ch. Al.	5	Y	P	Pu.	Y	N	N	Str.	DeLo.	Y	DeLo.	P. Spl.	War	m-U.M.	1/4	4.7	1-F	1-R	Se	Ross.	8-56 1/2	Pr-Ze	A-L
8-80	136	32x6.75	Own, 8-P	8-3x4x4	33.8	340	I	Ch. Al.	5	Y	P	Pu.	Y	N	N	Str.	DeLo.	Y	DeLo.	P. Spl.	War	m-U.M.	1/4	4.7	1-F	1-R	Se	Ross.	8-56 1/2	Pr-Ze	A-L
8-80	141	33x6.75	Own, 8-P	8-3x4x4	33.8	289	I	Ch. Al.	5	Y	P	Pu.	Y	N	N	Str.	DeLo.	Y	DeLo.	P. Spl.	War	m-U.M.	1/4	4.7	1-F	1-R	Se	Ross.	8-58 1/2	Pr-Ze	A-L
8-80	141	33x6.75	Own, 8-P	8-3x4x4	48.6	273	I	Ch. Al.	5	Y	P	Pu.	Y	N	N	Str.	DeLo.	Y	DeLo.	P. Spl.	War	m-U.M.	1/4	4.7	1-F	1-R	Se	Ross.	8-58 1/2	Pr-Ze	A-L
8-80	113	30x5.25	Own, 8-P	8-3x4x4	23.4	185	I	Ch. Al.	4	Y	P	Pu.	Y	N	N	Str.	DeLo.	Y	DeLo.	P. Spl.	War	m-U.M.	1/4	4.7	1-F	1-R	Se	Ross.	8-54 1/2	Pr-Ze	A-L
8-80	113	30x5.25	Own, 8-P	8-3x4x4	23.4	185	I	Ch. Al.	4	Y	P	Pu.	Y	N	N	Str.	DeLo.	Y	DeLo.	P. Spl.	War	m-U.M.	1/4	4.7	1-F	1-R	Se	Ross.	8-54 1/2	Pr-Ze	A-L
8-80	113	30x5.25	Own, 8-P	8-3x4x4	23.4	185	I	Ch. Al.	4	Y	P	Pu.	Y	N	N	Str.	DeLo.	Y	DeLo.	P. Spl.	War	m-U.M.	1/4	4.7	1-F	1-R	Se	Ross.	8-54 1/2	Pr-Ze	A-L
8-80	113	30x5.25	Own, 8-P	8-3x4x4	23.4	185	I	Ch. Al.	4	Y	P	Pu.	Y	N	N	Str.	DeLo.	Y	DeLo.	P. Spl.	War	m-U.M.	1/4	4.7	1-F	1-R	Se	Ross.	8-54 1/2	Pr-Ze	A-L
8-80	113	30x5.25	Own, 8-P	8-3x4x4	23.4	185	I	Ch. Al.	4	Y	P	Pu.	Y	N	N	Str.	DeLo.	Y	DeLo.	P. Spl.	War	m-U.M.	1/4	4.7	1-F	1-R	Se	Ross.	8-54 1/2	Pr-Ze	A-L
8-80	113	30x5.25	Own, 8-P	8-3x4x4	23.4	185	I	Ch. Al.	4	Y	P	Pu.	Y	N	N	Str.	DeLo.	Y	DeLo.	P. Spl.	War	m-U.M.	1/4	4.7	1-F	1-R	Se	Ross.	8-54 1/2	Pr-Ze	A-L
8-80	113	30x5.25	Own, 8-P	8-3x4x4	23.4	185	I	Ch. Al.	4	Y	P	Pu.	Y	N	N	Str.	DeLo.	Y	DeLo.	P. Spl.	War	m-U.M.	1/4	4.7	1-F	1-R	Se	Ross.	8-54 1/2	Pr-Ze	A-L
8-80	113	30x5.25	Own, 8-P	8-3x4x4	23.4	185	I	Ch. Al.	4	Y	P	Pu.	Y	N	N	Str.	DeLo.	Y	DeLo.	P. Spl.	War	m-U.M.	1/4	4.7	1-F	1-R	Se	Ross.	8-54 1/2	Pr-Ze	A-L
8-80	113	30x5.25	Own, 8-P	8-3x4x4	23.4	185	I	Ch. Al.	4	Y	P	Pu.	Y	N	N	Str.	DeLo.	Y	DeLo.	P. Spl.	War	m-U.M.	1/4	4.7	1-F	1-R	Se	Ross.	8-54 1/2	Pr-Ze	A-L
8-80	113	30x5.25	Own, 8-P	8-3x4x4	23.4	185	I	Ch. Al.	4	Y	P	Pu.	Y	N	N	Str.	DeLo.	Y	DeLo.	P. Spl.	War	m-U.M.	1/4	4.7	1-F	1-R	Se	Ross.	8-54 1/2	Pr-Ze	A-L
8-80	113	30x5.25	Own, 8-P	8-3x4x4	23.4	185	I	Ch. Al.	4	Y	P	Pu.	Y	N	N	Str.	DeLo.	Y	DeLo.	P. Spl.	War	m-U.M.	1/4	4.7	1-F	1-R	Se	Ross.	8-54 1/2	Pr-Ze	A-L
8-80	113	30x5.25	Own, 8-P	8-3x4x4	23.4	185	I	Ch. Al.	4	Y	P	Pu.	Y	N	N	Str.	DeLo.	Y	DeLo.	P. Spl.	War	m-U.M.	1/4	4.7	1-F	1-R	Se	Ross.	8-54 1/2	Pr-Ze	A-L
8-80	113	30x5.25	Own, 8-P	8-3x4x4	23.4	185	I	Ch. Al.	4	Y	P	Pu.	Y	N	N	Str.	DeLo.	Y	DeLo.	P. Spl.	War	m-U.M.	1/4	4.7	1-F	1-R	Se	Ross.	8-54 1/2	Pr-Ze	A-L
8-80	113	30x5.25	Own, 8-P	8-3x4x4	23.4	185	I	Ch. Al.	4	Y	P	Pu.	Y	N	N	Str.	DeLo.	Y	DeLo.	P. Spl.	War	m-U.M.	1/4	4.7	1-F	1-R	Se	Ross.	8-54 1/2	Pr-Ze	A-L
8-80	113	30x5.25	Own, 8-P	8-3x4x4	23.4	185	I	Ch. Al.	4	Y	P	Pu.	Y	N	N	Str.	DeLo.	Y	DeLo.	P. Spl.	War	m-U.M.	1/4	4.7	1-F	1-R	Se	Ross.	8-54 1/2	Pr-Ze	A-L
8-80	113	30x5.25	Own, 8-P	8-3x4x4	23.4	185	I	Ch. Al.	4	Y	P	Pu.	Y	N	N	Str.	DeLo.	Y	DeLo.	P. Spl.	War	m-U.M.	1/4	4.7	1-F	1-R	Se	Ross.	8-54 1/2	Pr-Ze	A-L
8-80	113	30x5.25	Own, 8-P	8-3x4x4	23.4	185	I	Ch. Al.	4	Y	P	Pu.	Y	N	N	Str.	DeLo.	Y	DeLo.	P. Spl.	War	m-U.M.	1/4	4.7	1-F	1-R	Se	Ross.	8-54 1/2	Pr-Ze	A-L
8-80	113	30x5.25	Own, 8-P	8-3x4x4	23.4	185	I	Ch. Al.	4	Y	P	Pu.	Y	N	N	Str.	DeLo.	Y	DeLo.	P. Spl.	War	m-U.M.	1/4	4.7	1-F	1-R	Se	Ross.	8-54 1/2	Pr-Ze	A-L
8-80	113	30x5.25	Own, 8-P	8-3x4x4	23.4	185	I	Ch. Al.	4	Y	P	Pu.	Y	N	N	Str.	DeLo.	Y	DeLo.	P. Spl.	War	m-U.M.	1/4	4.7	1-F	1-R	Se	Ross.	8-54 1/2	Pr-Ze	A-L
8-80	113	30x5.25	Own, 8-P	8-3x4x4	23.4	185	I	Ch. Al.	4	Y	P	Pu.	Y	N	N	Str.	DeLo.	Y	DeLo.	P. Spl.	War	m-U.M.	1/4	4.7	1-F	1-R	Se	Ross.	8-54 1/2	Pr-Ze	A-L
8-80	113	30x5.25	Own, 8-P	8-3x4x4	23.4	185	I	Ch. Al.	4	Y	P	Pu.	Y	N	N	Str.	DeLo.	Y	DeLo.	P. Spl.	War	m-U.M.	1/4	4.7	1-F	1-R	Se	Ross.	8-54 1/2	Pr-Ze	A-L
8-80	113	30x5.25	Own, 8-P	8-3x4x4	23.4	185	I	Ch. Al.	4	Y	P	Pu.	Y	N	N	Str.	DeLo.	Y	DeLo.	P. Spl.	War	m-U.M.	1/4	4.7	1-F	1-R	Se	Ross.	8-54 1/2	Pr-Ze	A-L
8-80	113	30x5.25	Own, 8-P	8-3x4x4	23.4	185	I	Ch. Al.	4	Y	P	Pu.	Y	N	N	Str.	DeLo.	Y	DeLo.	P. Spl.	War	m-U.M.	1/4	4.7	1-F	1-R	Se	Ross.	8-54 1/2	Pr-Ze	A-L
8-80	113	30x5.25	Own, 8-P	8-3x4x4	23.4	185	I	Ch. Al.	4	Y	P	Pu.	Y	N	N	Str.	DeLo.	Y	DeLo.	P. Spl.	War	m-U.M.	1/4	4.7	1-F	1-R	Se	Ross.	8-54 1/2	Pr-Ze	A-L
8-80	113	30x5.25	Own, 8-P	8-3x4x4	23.4	185	I	Ch. Al.	4	Y	P	Pu.	Y	N	N	Str.	DeLo.	Y	DeLo.	P. Spl.	War	m-U.M.	1/4	4.7	1-F	1-R	Se	Ross.	8-54 1/2	Pr-Ze	A-L
8-80	113	30x5.25	Own, 8-P	8-3x4x4	23.4	185	I	Ch. Al.	4	Y	P	Pu.	Y	N	N	Str.	DeLo.	Y	DeLo.	P. Spl.	War	m-U.M.	1/4	4.7	1-F	1-R	Se	Ross.	8-54 1/2	Pr-Ze	A-L
8-80	113	30x5.25	Own, 8-P	8-3x4x4	23.4	185	I	Ch. Al.	4	Y	P	Pu.	Y	N	N	Str.	DeLo.	Y	DeLo.	P. Spl.	War	m-U.M.	1/4	4.7	1-F	1-R	Se	Ross.	8-54 1/2	Pr-Ze	A-L
8-80	113	30x5.25	Own, 8-P	8-3x4x4	23.4	185	I	Ch. Al.	4	Y	P	Pu.	Y	N	N	Str.	DeLo.	Y	DeLo.	P. Spl.	War	m-U.M.	1/4	4.7	1-F	1-R	Se	Ross.	8-54 1/2	Pr-Ze	A-L
8-80	113	30x5.25	Own, 8-P	8-3x4x4	23.4	185	I	Ch. Al.	4	Y	P	Pu.	Y	N	N	Str.	DeLo.	Y	DeLo.	P. Spl.	War	m-U.M.	1/4	4.7	1-F	1-R	Se	Ross.	8-54 1/2	Pr-Ze	A-L
8-80	113	30x5.25	Own, 8-P	8-3x4x4	23.4	185	I	Ch. Al.	4	Y	P	Pu.	Y	N	N	Str.	DeLo.	Y	DeLo.	P. Spl.	War	m-U.M.	1/4	4.7	1-F	1-R	Se	Ross.	8-54 1/2	Pr-Ze	A-L
8-80	113	30x5.25	Own, 8-P	8-3x4x4	23.4	185	I	Ch. Al.	4	Y	P	Pu.	Y	N	N	Str.	DeLo.	Y	DeLo.	P. Spl.	War	m-U.M.	1/4	4.7	1-F	1-R	Se	Ross.	8-54 1/2	Pr-Ze	A-L
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8-80	113	30x5.25	Own, 8-P	8-3x4x4	23.4	185	I	Ch. Al.	4	Y	P	Pu.	Y	N	N	Str.	DeLo.	Y	DeLo.	P. Spl.	War	m-U.M.	1/4	4.7	1-F	1-R	Se	Ross.	8-54 1/2	Pr-Ze	A-L
8-80	113	30x5.25	Own, 8-P	8-3x4x4	23.4	185	I	Ch. Al.	4	Y	P	Pu.	Y	N	N	Str.	DeLo.	Y	DeLo.	P. Spl.	War	m-U.M.	1/4	4.7	1-F	1-R	Se	Ross.	8-54 1/2	Pr-Ze	A-L
8-80	113	30x5.25	Own, 8-P	8-3x4x4	23.4	185	I	Ch. Al.	4	Y	P	Pu.	Y	N	N	Str.	DeLo.	Y	DeLo.	P. Spl.	War	m-U.M.	1/4	4.7	1-F	1-R	Se	Ross.	8-54 1/2	Pr-Ze	A-L
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8-80	113	30x5.25	Own, 8-P	8-3x4x4	23.4																										



## *New All-traction Tread*

Just as you'd expect, Vulco Tires again lead in taking a big step forward in tire manufacture. The new *all-traction* balloon tread—small-patterned, flexible—clings to the road with increased ground grip. And by distributing tread wear evenly over a wider area, the new all-traction tread is lifting Vulco Balloon mileage to new high records.

# VULCO TIRES

Manufactured by The Gates Rubber Company, Denver, U. S. A.



**REPLACE DAMAGED FENDERS**  
With  
**FOSTORIA Quality FENDERS**

*Simple Styles of Replacement*

*Fenders for Immediate Delivery*

**FORD**

**BUICK**

**CHEVROLET**

**OLDSMOBILE**

**PONTIAC**

**SAAB**

**VALMET**

**WILLYS**

**YIP**

*You can make money replacing fenders if you have a Fostoria Wall Chart like that shown above. Sign the Coupon below and one will be sent you FREE! It lists the name of the nearest Fostoria Distributor.*

**“What a Difference a New Fender Makes!”**

## FOSTORIA FENDERS

THE FOSTORIA PRESSED STEEL CO., Dept. A., Fostoria, Ohio

Please send me a copy of the Fostoria Wall Chart showing name of nearest Fostoria Distributor.

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_



## becomes a lane of commerce and a *tool of industry*



### Brunner Model 300 Spray Gun

The latest development in the spray-gun field. Light, strong, nicely balanced, easily cleaned, readily adjustable to all conditions.

A hard master, and yet a faithful slave, Air, last of the elements to be conquered by man, now holds tremendous possibilities in the fields of industry and commerce.

Behold! Air fills your tires, cleans your motors, grinds your valves, pumps your gas and, now, spray-paints your cars in fractions of the time and cost of former methods.

Thousands of car dealers have put this giant to work through Brunner Air Compressors and spray-paint equipment in the refinishing of used cars to sell at greater profits. Here's a point of vital interest in every automotive shop.

For your benefit we have prepared an attractive booklet on Spray Painting. May we mail a copy to you with our compliments?

**BRUNNER MFG. CO.**  
UTICA, N. Y.

Kansas City, Mo., San Francisco, Cal., Toronto, Can.



# BRUNNER

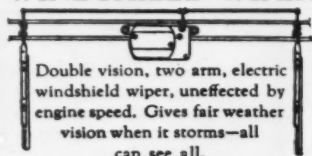
## AIR COMPRESSORS

BRUNNER MFG. CO. Dept. M.A.  
Utica, N. Y.  
Send me your booklet "Spray Painting the Automobile."  
Name.....  
Address.....



## OTHER BOSCH AUTOMOTIVE NECESSITIES

### BOSCH ELECTRIC WINDSHIELD WIPER



Double vision, two arm, electric windshield wiper, unaffected by engine speed. Gives fair weather vision when it storms—all can see all.

### BOSCH TRAFFIC-TUNED HORNS, Electric

Four sizes and types of instantaneous warning signals with distinctive tones and efficient warning.



### BOSCH SPARK PLUGS



Gas-tight, heat resisting Bosch Spark Plugs give big, ribbon-like sparks for cold weather starting.

### BOSCH IGNITION FOR FORDS

Automatic, dependable Bosch ignition adds new performance to Fords, improves power and gives greater mileage.



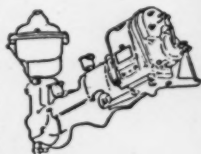
### BOSCH UNIVERSAL IGNITION COIL



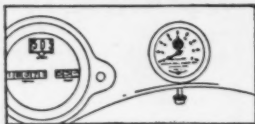
Replaces ignition coils on all makes of cars and trucks. Gives Bosch standard of dependable performance.

### BOSCH MAGNETO AND GOVERNOR FOR FORDSONS

Automatic control for Fordsons. Saves in operation and improves the performance. Saves its cost in a season.

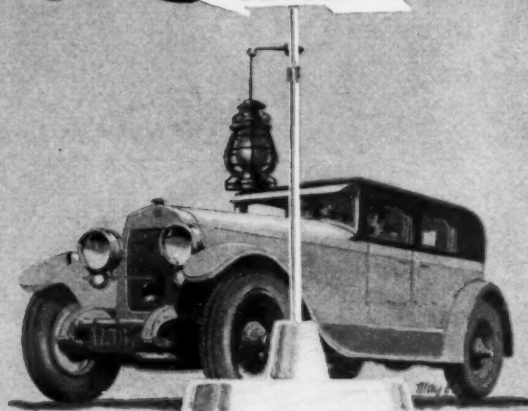


### BOSCH AUTOMATIC GAS SIGNAL



Entirely electrical in operation. Accurately records gasoline in tank and automatically flashes warning before tank is empty.

# detour



**W**HEN you sell Bosch Shock Absorbers you sell a dependable, all-around service of improved motoring comfort and safety. Rough detours, ruts and holes which cause cars to rise and sway from sudden rebounds are negotiated with ease by Bosch Shock Absorber equipped cars. That galloping, "wavey" swaying motion caused by balloons is eliminated. There is a feeling of safety—a noticeable steadiness about Bosch Shock Absorber equipped cars. And a noticeable steady sale. Only two types required to fit all cars—easily adjusted to any tires.

For Fords (3-point Control Set) complete \$16.50 per set.  
Medium Cars \$15 per pair. Heavy Cars \$20 per pair.

AMERICAN BOSCH MAGNETO CORP.

Main Office and Works - - - Springfield, Mass.

Branches: New York Chicago Detroit San Francisco



# BOSCH SHOCK ABSORBER

**BOSCH  
RADIO**

receivers are noted for their tonal quality, beauty of appearance and simplicity of operation. Wide range of selection is had in 5, 6 and 7-tube receivers, two-cone type reproducers and a range of power units.

# The Most Sensational Seller in Accessory History-



**O**RDERS keep pouring in for the "Bull Dog" Model C. The percentage of Ford Owners now demanding Bull Dogs is bigger than ever before—in spite of the fact that "Bull Dog" has been the largest selling accelerator for over ten years.

The very uniqueness of the Universal idea—immediately appealed to the entire automotive trade. Dealers everywhere realized that "Bull Dog" again led the industry in giving them the most practical improvement and sensational seller in the history of accelerators for Fords.

*The Model C fits all Fords—old models with any style carburetor. New models with vaporizers. Models on which a re-generator is installed.*

Sells for \$1.50

**The W. H. Thomas Mfg. Company**  
Spencer, Iowa

*World's Largest Manufacturers of Accelerators*

# "Bull Dog"

THE BEST ACCELERATOR for FORDS



TOWING *and* RESCUE SERVICE*Pays you*

# WEA

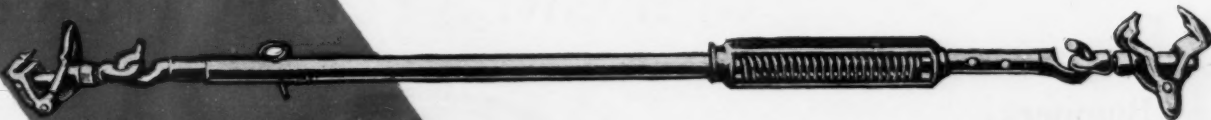
WRECKING

**Weaver Auto Crane**

The biggest money-maker you can put on the payroll. Takes up little room in the body of the service car, light but amply strong to handle loads to 6,000 pounds. One man, standing in truck or on the ground, can easily raise or lower boom to the desired height—even with the load suspended—by blocking boom. Makes towing a one-man job. Swivel head permits side pull without chain binding. Large drum accommodates 50 ft. of chain or 200 ft. of cable and prevents kinking. Equipped regularly with 35 ft. of  $\frac{1}{4}$ " and chain or 50 ft. 7-16 in. cable.



# a whale of a Profit!



## Weaver Towing Pole

Provides a safe connection for towing in disabled cars, rigid to prevent smash-ups on sudden stops—yet hooks on each end provide ample flexibility to prevent bending pole when turning corners or towing on rough roads. Heavy coil spring also absorbs shocks of sudden starting and stopping. Two jaw-clamps can easily be attached to front or rear of any car. Car can be pulled or pushed, as conditions necessitate. Length of pole adjustable.

**G**IVING service is bound to get you a reputation. It travels. The shop or garage whose wrecking equipment is complete, couldn't, if it tried, conceal the fact. Your name on the service truck—the full equipment it carries—these build good will and confidence.

There isn't a branch of motor service that pays nearly so well. And besides big fees that you get for wrecking—there are profits from the repairing *after* they're in.

Complete your rescue equipment with these Weaver Products. Every one has a part in the full service of bringing them home. Each pays a whale of a return on the investment.

*Your Jobber's Salesman Can Tell You  
Or You Can Write to.....Us!*

WEAVER MANUFACTURING COMPANY, Springfield, Illinois, U.S.A.  
WEAVER CANADIAN COMPANY, LTD., Chatham, Ontario, Canada

# WEAVER

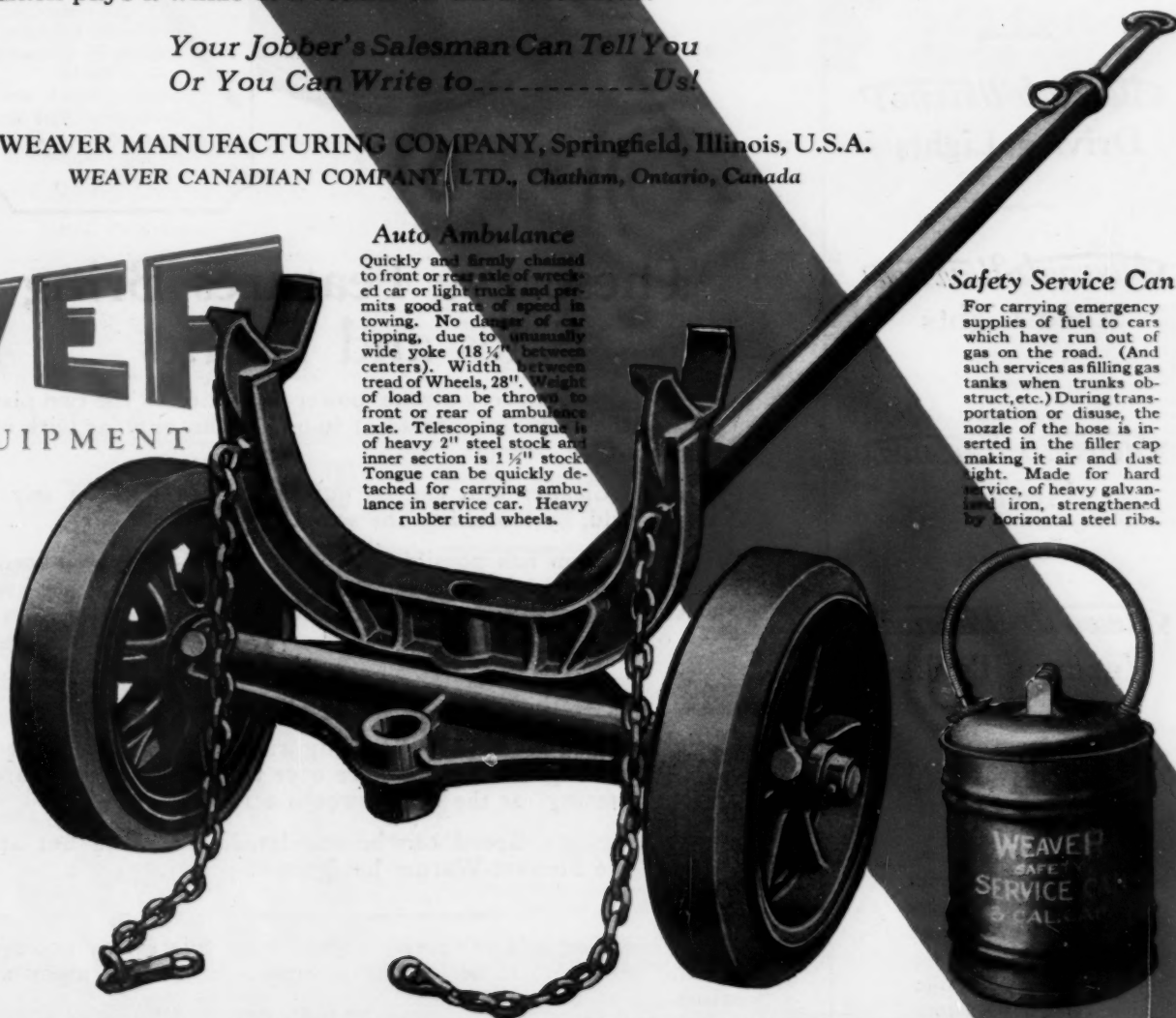
EQUIPMENT

## Auto Ambulance

Quickly and firmly chained to front or rear axle of wrecked car or light truck and permits good rate of speed in towing. No danger of car tipping, due to unusually wide yoke (18 1/4" between centers). Width between tread of wheels, 28". Weight of load can be thrown to front or rear of ambulance axle. Telescoping tongue is of heavy 2" steel stock and inner section is 1 1/2" stock. Tongue can be quickly detached for carrying ambulance in service car. Heavy rubber tired wheels.

## Safety Service Can

For carrying emergency supplies of fuel to cars which have run out of gas on the road. (And such services as filling gas tanks when trunks obstruct, etc.) During transportation or disuse, the nozzle of the hose is inserted in the filler cap making it air and dust tight. Made for hard service, of heavy galvanized iron, strengthened by horizontal steel ribs.





STOCK THESE  
SALES  
LEADERS

*Stewart-Warner*  
Bumpers

*Stewart-Warner*  
Shock Absorbers

*Stewart-Warner*  
Speedometers

*Stewart-Warner*  
Driving Lights

*Stewart-Warner*  
Road Lights

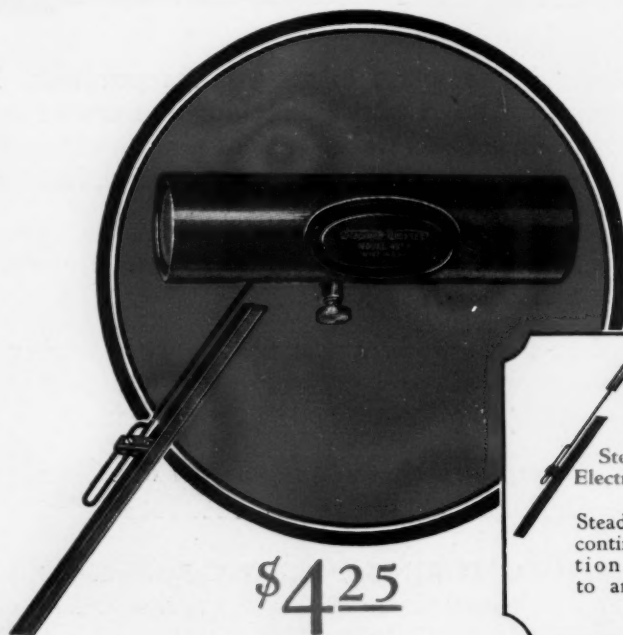
*Stewart-Warner*  
Horns

*Stewart-Warner*  
Vacuum Tanks

Be sure to stock Genuine Stewart-Warner Repair Parts for Speedometers and Vacuum Tanks. Profit for you and satisfaction for your customers.

*Stewart-Warner*

A Vacuum Windshield Cleaner  
with GREATER POWER



\$4<sup>25</sup>

COMPLETE



Also the  
Stewart-Warner  
Electrically-Operated  
Model  
Steady, silent and  
continuous operation.  
Adjustable to any windshield.

\$8.50

These Big Features Bring  
Sales and Profits

**Greater Power**—At every stroke, power is applied to the two pistons within the cylinder, instead of to one piston only, as with other vacuum-type cleaners.

**Adjustable**—Cleaner arm can be quickly adjusted to fit any size windshield, by loosening one screw.

**Full Swing**—Arm has possible swing of 180°—can be placed up against windshield top, or lifted away from windshield when washing glass. A small attachment to bracket holds arm up, out of the way, when not in use.

**Noise Eliminated**—Objectionable clicking and hissing noises have been practically eliminated.

**Sweeps Clean**—The edge of cleaning rubber lies flat against the glass, exerting an even pressure over the entire cleaning area—no "chattering" as the blade sweeps across.

**Regulated Speed**—Speed can be regulated as desired but at all speeds the Stewart-Warner has greater power.

The cars you sell or service should have this safety accessory. Easy and profitable to sell. The low price will make many sales possible.

STEWART-WARNER SPEEDOMETER CORP.—CHICAGO, U. S. A.

# Sell Cooper PRODUCTS For Sure Continuous Profits



[ List Prices of Cooper Valves range from \$2.50 for Fords up to \$5.00 for larger cars. ]

**Engine Tester and Carbon Outlet Valve**

If you are not stocking and pushing Cooper Engine Testers and Carbon Outlet Valves, you're overlooking sure continuous profits. Your business and profits depend on serving car owners with dependable merchandise. Cooper Valves can be backed to the limit. They have behind them many years of performance success.

## Why Car Owners Prefer The Cooper

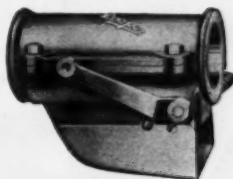
1. It is the one scientifically designed engine tester.
2. Blows out loosened carbon.
3. Easily and quickly installed.
4. Made with extra heavy flapper and spring.
5. Chatterproof. Silent when closed.
6. Increases power of motor.
7. Saves gasoline.
8. Self-cleaning. Mud, water and dust proof.
9. Relieves all motor back pressure.
10. A combination engine tester and carbon outlet valve

The  
Cooper  
System of  
Car Heating  
is coming  
**WAIT!**

## Cooper Special for Chevrolets

In great demand due to increased Chevrolet sales. Quickly installed on all models—easy to sell—guaranteed results.

List Price \$4.00



Attendance at the A. E. A. Dealer Merchandising Meetings—Pays



## Cooper Senior Dash Control

The most popular of all Dash Controls. Handsome, handy, positive action. A wide range of uses including Cooper Cut-outs and heaters, also radiator shutters, chokes, primers, etc.

List Price \$2.00

Clamp on dash attachment illustrated 25c extra

COOPER MANUFACTURING COMPANY

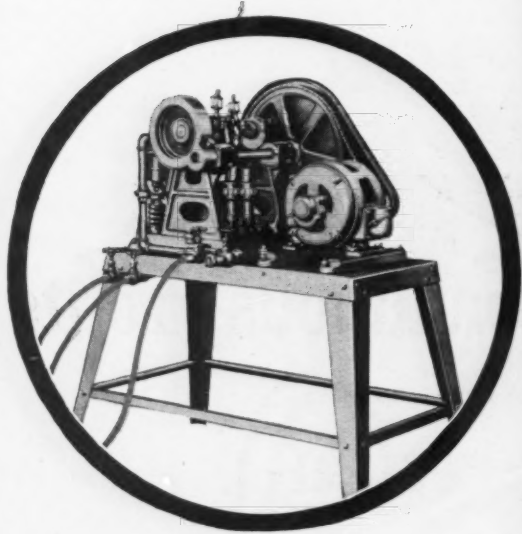
429 South First Ave.

Marshalltown, Iowa

Exclusive Sales Representatives

THE FULTON COMPANY, Milwaukee, Wisc.





## Get Your Share of this \$200,000,000

THE market for car washing will produce an average business of \$10 per year per car for the service stations equipped to wash automobiles, or easily two hundred millions of dollars annually.

Any man, anywhere, with proper equipment can make money washing cars. And there is this further fact—while car washing itself is a great profit producer it also becomes the means of attracting trade for other departments of the place where the washing is done.

The entire success of car washing as a business rests squarely upon the capacity, quality, and dependability of the car washer used. It must have abundant capacity; it must be dependable; it must avoid frequent breakdowns; it must operate efficiently, economically and constantly.

Compare the Hardie Dependable Car Washer of any given rating with any other in the market of the same rating. You will find that the Hardie delivers more liquid through the gun, keeps a more constant pressure behind the stream, is built bigger and stronger in every part and hence lasts longer and costs less to operate. These are the reasons why service men who use Hardie Dependable Car Washers are making money day after day. Get all the facts. We will gladly send you complete data.

*For Sale by Leading Jobbers Everywhere*

**THE HARDIE MFG. COMPANY**  
Main Office and Factory, Hudson, Mich.

Western Factory  
PORTLAND, ORE.

Canadian Factory  
PETROLIA, ONT.

Branches:  
222 N. Los Angeles St., Los Angeles, Calif.  
1780 Broadway, New York  
Export Department  
120 Madison Avenue, Detroit

# HARDIE

## DEPENDABLE CAR WASHER

# 3 profitable **WEED** accessories needed on every car



## **WEED CHAINS**

*"Wet rubber slips, WEED chains grip"*

## **WEED Levelizers**

*"Level the road as you go"*

## **WEED BUMPERS**

*"Sensible protection—fore and aft"*

There is no let up in the need for profitable WEED sellers. Nor in the honest and consistent WEED national advertising. Nor in the dealer's opportunity to make good sales on WEED items every month in the year.



**AMERICAN CHAIN COMPANY, Inc.**  
BRIDGEPORT, CONNECTICUT

*In Canada: Dominion Chain Company, Limited, Niagara Falls, Ontario*  
*District Sales Offices:*  
Boston Chicago New York Philadelphia Pittsburgh San Francisco





**WET RUBBER** *slips*  
**WEED CHAINS** *grip*

**Tear off and mail coupon for skid poster**

**Your Address above**





## Summer rains sell WEED Chains

### Summer is the worst season for Skidding accidents—wake up!

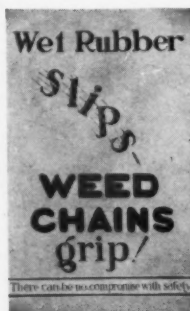
Last summer skidding cars killed 41 and caused 1,297 serious accidents in one state alone (and there are 48 states in the Union)—Think what this means in skidding accidents during every summer rain!

Something must be done to prevent so many disastrous skids during summer rains. Already many careful people are giving up pleasure drives in the summer, if the weather looks uncertain. You can't blame them. They read about the fearful increase in the number of skidding accidents, and they don't want to get wrecked.

The majority of these people may be lazy. They may hate to stop their cars and put on chains. But thousands of them have reached the point where they will put on WEEDS when it starts to rain—if you, the dealer, will put in your word of advice to back up the year 'round WEED advertising for safety through use of chains.

*Come in now and buy*  
**WEED TIRE CHAINS**  
*We use 'em ourselves*

### A little effort sells many sets of chains



Motorists need to be reminded. Many a sale is made by a timely suggestion. A man comes in for a "whing-dang" or something, and knows that he needs tire chains. He knows that he should have them, and will buy nine times out of ten, if you remind him. That is the way most retailers make a success—by reminding. You can sell WEED Chains every month of the year with a little effort if you remind them.

### WEEDS are advertised the year round

Every month publications like the Saturday Evening Post carry the story to the motoring public. This intensive advertising is carried on to help you sell WEED Chains. But whether you benefit, or

the other dealer down the street or in the next town, depends entirely on the use you make of WEED advertising and display material. If you are wide-awake, you will get the business and make the profits.

### Keep your stock of WEED chains in full display

Let your WEED jobber send you the WEED Chain selling helps, and put them out where everyone will see them. Let these displays help you sell this most profitable of all accessories.

Tell your customers to carry WEED Chains and to stop for a few minutes to put them on, or to have them put on at a service station. Tell them that with chains they can drive much safer—and in the knowledge that if they meet an unavoidable accident the authorities will give them credit for having done all they could to drive safely.



### Many keen dealers make big Summer profits



The statements above are facts. Many dealers are successful because they make the best use of this selling advertising and dealer help co-operation. Many dealers practice what they preach, and use WEED Chains on their personal cars whenever it rains.

Read your papers. Almost every rainy day, in even the smallest town, a bad skidding accident takes its toll in smashed cars, injured people, and oftentimes a casualty. People say they drive more carefully when it rains. But do facts prove this out? No!

Get behind this WEED Chain drive. Send for the poster shown on the left hand page, and display it along with other WEED Chain selling helps—a few of which are illustrated in miniature on this page. Remind your customers that *Wet Rubber Slips* and WEED Chains *grip*.

### Show your customers how easy it is to put on their chains

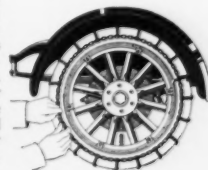
Drape chains over both tires with red connecting hook just resting on the road, toward the rear. Tuck forward end of chain under tire.



Roll car forward just enough to run over the slack ends, so that the red connecting hooks are about a foot above the road.



Connect the inside hook first then the outer—as tight as possible by hand. When car runs the chains will have proper creeping action.



Make this your contribution to the public safety movement





Collier's, The National Weekly, for April 9th, 1927



Wherever people appreciate quality—  
you'll find a preference for WEED Bumpers

Ask for WEED Bumpers by name. Don't just order bumpers. . . WEEDS are easily distinguished by the triangle on each bar clamp. That triangle stands for the trinity of quality, beauty, and strength.

Unusual care in finishing WEED Bumpers helps them resist corrosion—keeps them bright long after you expect surface deterioration.

Full fender width of WEED Bumpers saves many a nick and dent from glancing impact. Yet WEEDS are in-curved to prevent hooking other bumpers or fenders in close quarters.

WEED fittings bring the broad and sturdy bars of spring steel at the right height to meet, not interlock, contacting bars.

So ask for WEED Bumpers by name.

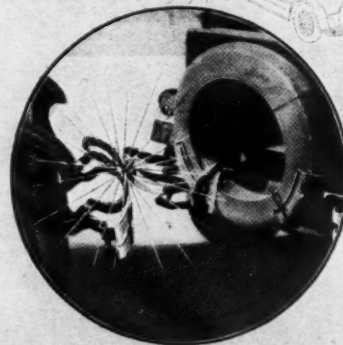
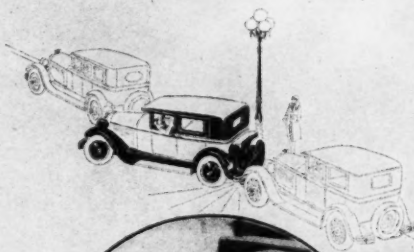
## WEED BUMPERS

"Quality, Beauty and Strength"

AMERICAN CHAIN COMPANY, Inc.  
Bridgeport, Connecticut

In Canada: Dominion Chain Company, Limited, Niagara Falls, Ont.  
District Sales Offices: Boston Chicago New York Philadelphia Pittsburgh San Francisco  
Makers of WEED Chains and WEED Levelizers

Collier's, The National Weekly, for May 7, 1927



## Weed Bumpers

*combat* daily abuse

You needn't worry, when the other fellow rams you, shoves you forward or backward if you have WEED Bumpers.

To combat this daily abuse, you should have quality bumpers—bumpers that will take hard wallops and stay tight. And not tear apart. Or loosen. WEED Bumpers are sturdy, springy, full width, and shaped to avoid hooking or tangling in traffic.

Special attention is paid to the way WEEDS are fastened to the frame of the car. Attachments are made to fit the car perfectly. They are made to hold tight.

When you buy your new car you are charged for bumpers. So insist on quality WEED Bumpers. Your car dealer can get them for you at a nearby WEED distributor.

AMERICAN CHAIN COMPANY, Inc.  
BRIDGEPORT, CONNECTICUT  
In Canada: Dominion Chain Company, Limited,  
Niagara Falls, Ontario

## WEED BUMPERS

Sensible protection, fore and aft



# Front and rear need bumpers

"Sensible protection fore and aft"

There is more traffic in summer—greater danger—greater need for bumpers on every car. And *your sales opportunity* is greater with WEED Bumpers because WEEDS look beautiful, and stand up splendidly under the bumps of close traffic and the wallops of unavoidable collisions. WEED fittings stand up better, and save running in for service after every impact. These are facts to use in selling WEED Bumpers.

# WEED BUMPERS

AMERICAN CHAIN COMPANY, Inc.  
BRIDGEPORT, CONNECTICUT

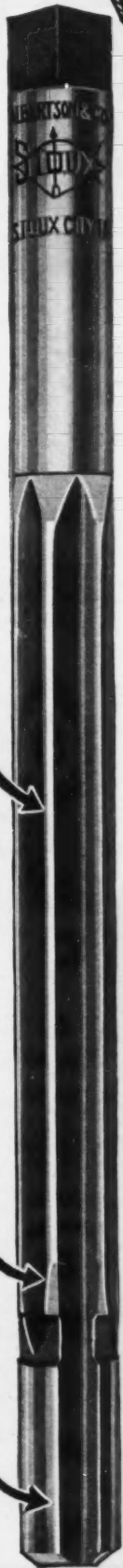
In Canada: Dominion Chain Company, Limited, Niagara Falls, Ontario  
District Sales Offices: Boston Chicago New York Philadelphia Pittsburgh San Francisco

Makers of WEED Chains, WEED Bumpers, WEED Levelizers



## VALVE STEM GUIDE REAMERS

PILOT CUTTING POINT GUIDE



### An Important Job Neatly, Quickly Done!

FOR reaming out new valve stem guides to standard size, the "Sioux" *Standard Size* Valve Stem Guide Reamer is the most efficient and time-saving tool. It also offers the only really practical and thorough method for *cleaning out* old guide holes without increasing their size—thus eliminating a common cause of valve-sticking.

Sioux Guide Reamers are also made in "Oversize" for reaming out guide holes when installing oversize valve stems. The cutting is done at the end of the flutes just behind the pilot. The other part of the teeth along the flute do not cut, but serve only as a guide. You cannot cut a lop-sided hole with this reamer.

Both "Standard" Size and "Oversize" can be resharpened without affecting their size.

**Your Jobber Sells Them.**

ALBERTSON & CO., . . . Sioux City, Ia., U.S.A.

SIoux

Trade

Mark Reg

U.S. Patent

Office



# SHERWIN-PAINTS VARNISHES

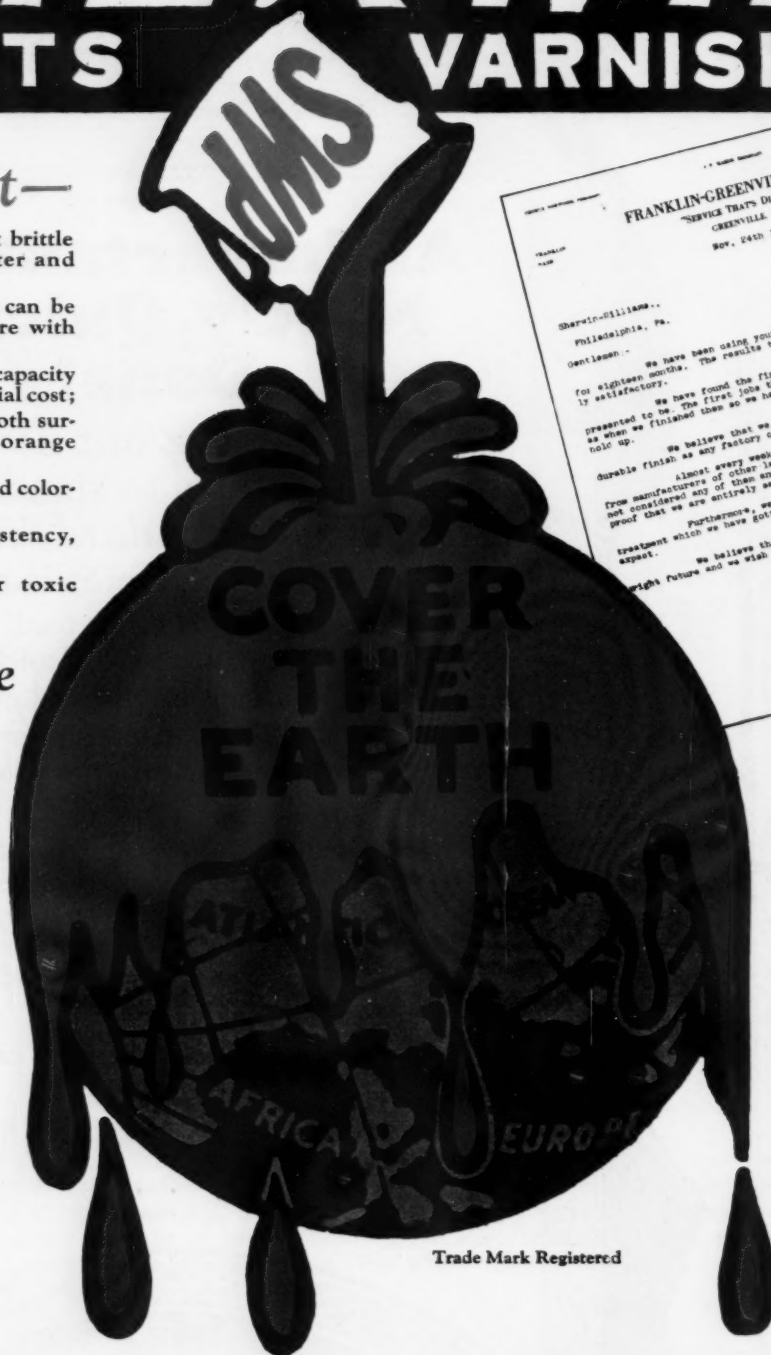
If you want—

- 1 A hard, tough, but not brittle film that is wear, water and weather proof;
- 2 A natural gloss which can be brought to a high lustre with the lowest labor cost;
- 3 Exceptional covering capacity with a minimum material cost;
- 4 An even flow and smooth surface free of bubbles, orange peel or blushing;
- 5 Fast lacquer enamels and colorless clears;
- 6 Uniformity of consistency, weight and shade;
- 7 No residual odor or toxic fumes;

You will use

**OPEX**

The perfected  
lacquer enamel



Trade Mark Registered

# LARGEST IN

# WILLIAMS

## LACQUERS · ENAMELS

Behind this trim salesroom is the Franklin-Greenville Company's large paint shop. The offers of other manufacturers fall on deaf ears when a product has come through for the user as well as Opex has for this company



“After 18 months—  
our first Opex jobs look like new!”

says Mr. Browning Goldsmith, Mgr.,  
Franklin-Greenville Co.,  
Greenville, So. Carolina

“We find Opex to be as represented . . . your service is all we could expect . . .” And between the lines of this letter you can see the words, “Real profit and satisfaction!”

Read the Opex features at the left. Can any lacquer finish give you those advantages in as great measure as Opex? Hundreds of paint shop owners say “No!” emphatically.

Take their advice. Tear off the coupon now and send for the Opex booklet that started those men toward greatly increased profit!

**THE SHERWIN-WILLIAMS Co.**  
Cleveland, Ohio

THE SHERWIN-WILLIAMS CO.,  
420 Canal Road, Cleveland, Ohio  
Gentlemen: Please send me the Opex literature.

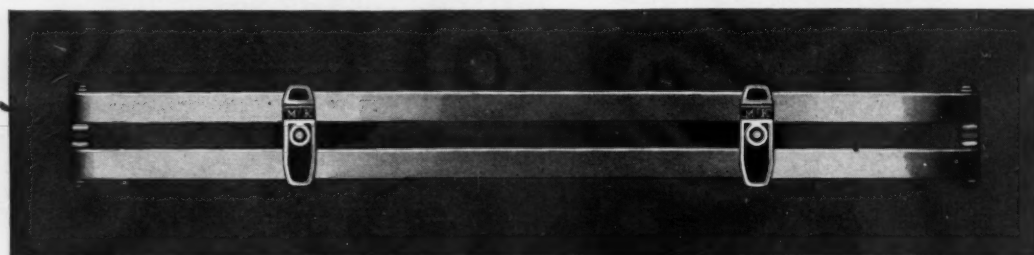
Name \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_ Business \_\_\_\_\_

# THE WORLD



Want more bumper profits? Of course you do! Then why not let McKay Red Bead Bumpers add to YOUR profits while they are adding "good looks" to the motor cars of your customers—and protecting "good looks," too?

## MCKAY RED BEAD BUMPERS



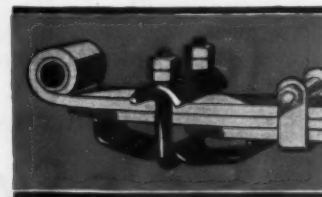
# MCK

### MCKAY TIRE CHAINS



You'll make year 'round tire chain profits when you sell the "safe driving" idea to your motorists—when you sell them preparedness for the emergency—protection to themselves and the public by having McKay Tire Chains in their cars—*always*. Identify yourself with McKay and put this nationally-known name on your selling force.

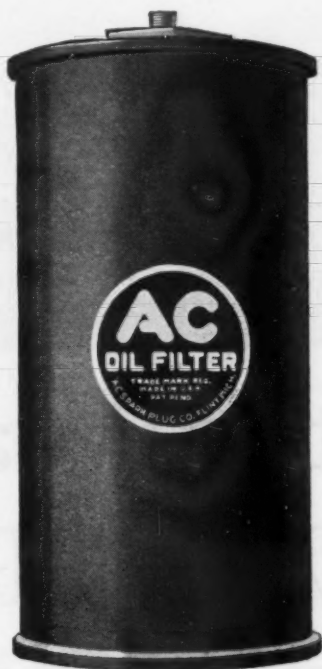
### MCKAY SPRING CONTROLLERS



More profits still!—by smoothing out the roads—by stopping both the ups and downs for your motorists. McKay Spring Controllers do the job. They're easy to install. No drilling. Easy to sell, and they stay sold. These low prices get the business—Fords, \$5.00 a set—other cars, \$6.50 and \$8.00 for sets of four.

UNITED STATES CHAIN & FORGING COMPANY, UNION TRUST BUILDING, PITTSBURGH, PA.  
Manufacturers of Chains for All Industrial and Commercial Purposes

# How You Can Get This AC Oil Filter Replacement- Cartridge Business!



ALL of the cars and trucks listed below are factory equipped with AC Oil Filters.

Available	Federal	Oakland
Buick	GMC Truck	Oldsmobile
Cadillac	La Salle	Paige
Chandler	Nash	Peerless
Chevrolet	Nelson Le-Moon	Ward La-France
	Yellow Cab	

Every owner of one of these AC Oil Filter equipped cars and trucks is a ready customer for an AC Oil Filter Replacement Cartridge one or more times a year.

You can get this business by checking the oil filters on these cars in the manner outlined below:

## How to Check

Always make test with engine running and well warmed up.

Available  
Buick  
Chandler "Big Six"  
Chandler "Spec. Six"  
Chandler "8"  
Chevrolet  
Federal  
GMC Truck  
Nash "Light Six"  
Nelson Le-Moon  
Oakland  
Oldsmobile  
Paige "8"  
Ward La-France

Open test cock  
and observe  
flow of oil.

Nash "Advanced" { Remove cylinder head  
Nash "Spec. Six" { cover and observe flow  
                          of oil to rocker arms.  
Cadillac..... { Remove pipe plug marked  
                          "test" and observe flow of oil.  
La Salle..... { Remove pipe plug in outlet con-  
                          nection and observe flow of oil.  
Chandler "Light Six" { Observe oil flow  
                              into oil filter pipe.  
Peerless "6-60"..... { Disconnect filter outlet  
                              and observe flow of oil.

If oil flows freely, filter is O. K. If oil fails to flow or only comes out in slow drip, it indicates a new cartridge is needed at once.

Put in a stock of replacement cartridges and line up to go after this profitable business, making it clear to your customers that the cost of a new cartridge is offset many fold through the saving in oil and repairs.

A complete AC Oil Filter installation is now available for application on practically all makes and models of cars not oil filter equipped—Ask your Jobber's Salesman.

AC Spark Plug Company, FLINT, Michigan

AC-SPHINX  
Birmingham  
ENGLAND

Makers of AC Spark Plugs—AC Speedometers—AC Air  
Cleaners—AC Oil Filters—AC Gasoline Strainers

AC-TITAN  
Levallois-Perret  
FRANCE

Over 200 of the world's most successful manufacturers use one or more, or all of these AC Products

AC

SPARK PLUGS

AC

SPEEDOMETERS

AC

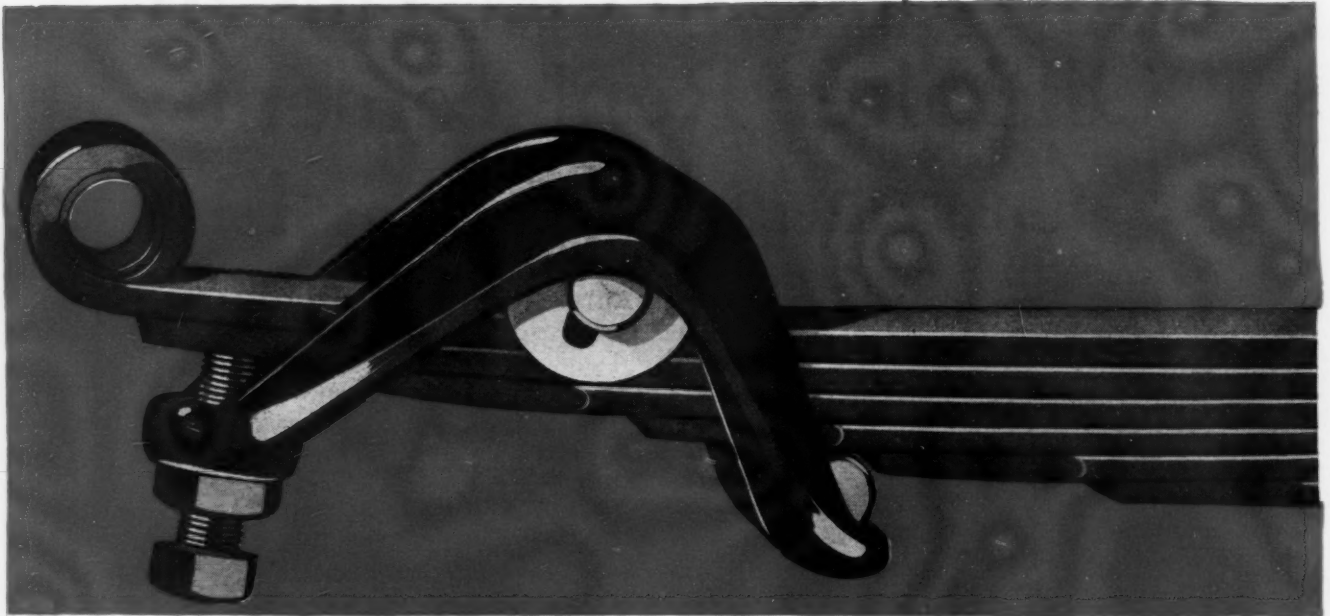
AIR CLEANERS

AC

OIL FILTERS



# They Smooth the Roads



## And They Pave the Way The NEW TYPE

### Dealers are Saying:

"Hexdees are moving rapidly with us; ship 50 more sets at once."

"Never yet lost a sale where I have made a demonstration."

"We expect to sell 100 sets a month."

"Selling a lot of them — not a single dissatisfied customer."

# HEX

**\$14<sup>25</sup>**  
for  
Complete  
Set

**\$8<sup>75</sup>**  
Complete  
Set for  
Fords

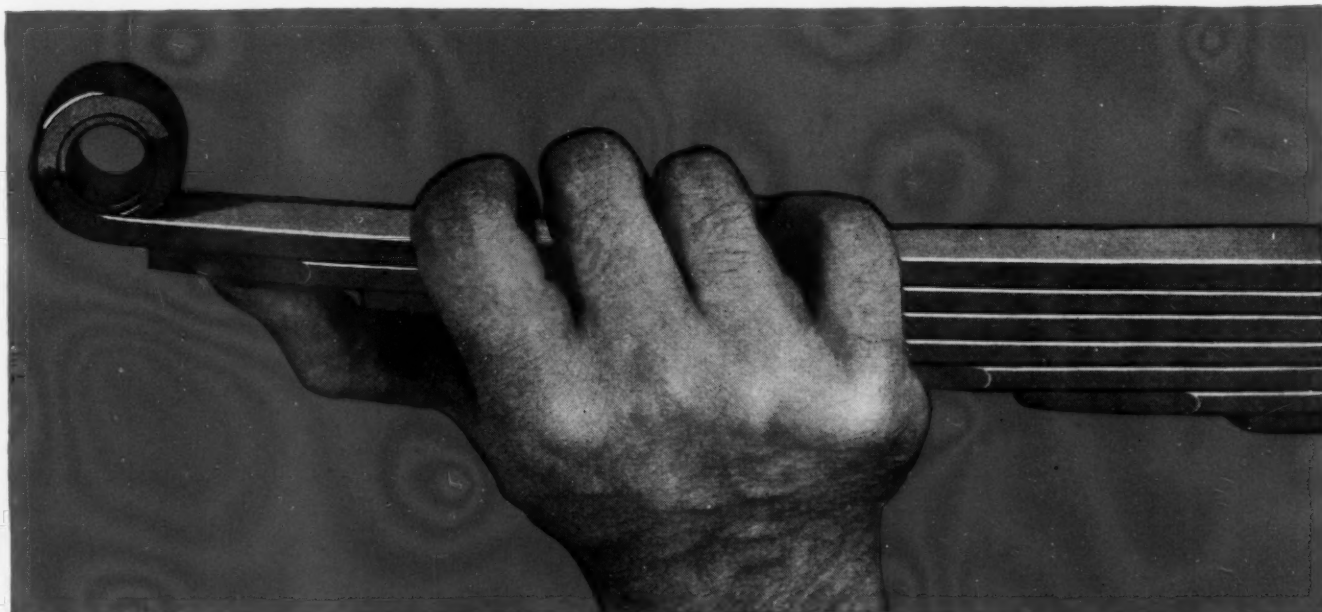
\$15.25 and \$9.25, respectively,  
Denver and West.

By their smooth, sure gripping of the spring leaves, these NEW TYPE Shock Absorbers control spring action and "stop that galloping" by an entirely new principle that's simple in design, construction and installation, therefore *low* in cost. Hexdees end both the "ups and downs" of motoring.

Sure performance, low cost, easy installation, long life without servicing are some of the outstanding reasons why dealers everywhere are selling HEXDEES today.

Designed for Spring Control by  
the Manufacturers of "Detroit Springs," which are Standard

# by Controlling the Springs



## for Profitable Sales LOW COST Shock Absorber

# HEXDEES

And for these very real reasons, Hexdees top the lists of *profit makers* for the dealers — low cost puts Hexdees within easy reach of the average motorist and increases the shock absorber market — small stocks reduce the dealer's investment — ready demand means quick turnover.

Fill in the coupon opposite. It will bring you a "personal trial" set for your car. This will lead to the installation of a few sets on your customers' cars. Then watch your sales grow.

DETROIT STEEL PRODUCTS CO., 2286 East Grand Boulevard, Detroit, Michigan  
Pacific Coast Factory: Oakland, Calif.  
Canadian Factory: The B. J. Coghlin Co., Ltd., 2050 Ontario St., E., Montreal

Equipment on over 40 Cars and Trucks

### DETROIT STEEL PRODUCTS COMPANY

2286 East Grand Boulevard  
Detroit, Michigan

Please send me, C. O. D., at regular dealer discounts, a set of HEXDEES for demonstration on

my ----- car,

model ----- year-----

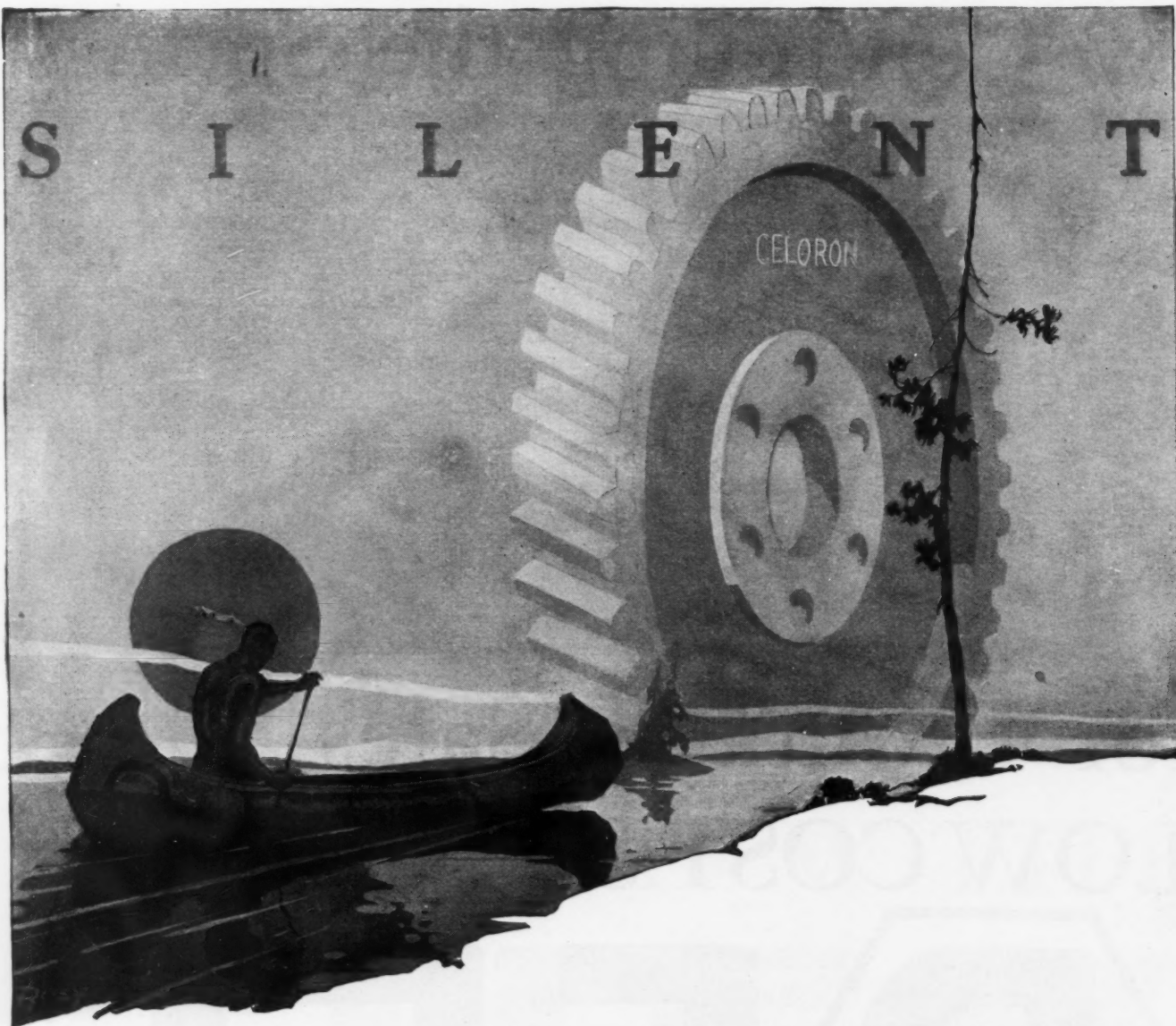
Name -----

Address -----

-----

I am a ☐ Car Distributor  
☐ Car Dealer  
☐ Repair Garage Owner  
☐ Service Station Owner





#### Celoron Timing Gears

*Non-metallic and resilient*

- 1—Eliminate metal-to-metal contact
- 2—Silent at all speeds, and stay silent permanently
- 3—Save every part of the timing mechanism from the effects of vibration and shock
- 4—Accurately cut, they keep timing accurate
- 5—Grease-proof, oil-proof, water-proof—will not warp or swell

Celoron laminated products, moulding powders and varnishes are bonded exclusively with Celoron resins. Celoron is the only laminated phenolic material manufactured entirely by one organization under the control of one laboratory.

**G**GLIDING upon unruffled surfaces, speeding with the rush of swift, smooth waters—what fascination there is in silent, effortless motion!

To glide silently along behind a quiet, perfectly timed motor is the supreme sensation of luxurious motoring. Above all else, perfect timing is the secret of silence and motor durability. Celoron Silent Timing Gears preserve that perfect timing which ensures a silent, unending flow of effortless power.

That is why the preference for Celoron Timing Gears, by car owners and car builders alike, has grown so steadily—why the noisy motor front-ends that have already been hushed with Celoron Gears now number in the millions.

**THE CELORON COMPANY, Bridgeport, Pennsylvania**

*Division of Diamond State Fibre Company*

*Laminated Products, Moulding Powders and Varnishes*

*In Canada: 350 Eastern Ave., Toronto*

# CELORON

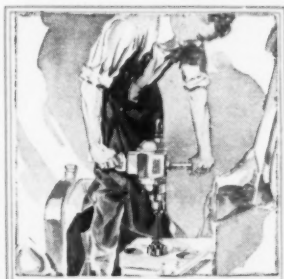
## TIMING GEARS

# Of the 20 Million Cars

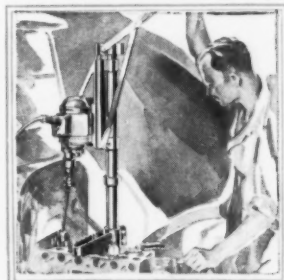
## How Many Can You Talk To With This Campaign



## on the HUTTO GRINDER



Twenty thousand service stations use the Hutto Twin Three Grinder.



The Hutto Process of Cylinder regrinding is used and endorsed by 85% of the manufacturers.

To get your share you must reach the individual car owner.

How will you reach him?

How will you convince him?

It does pay to advertise when properly planned.

Our campaign is practical. It is based upon experience with your problems.

It will sell your ability - your equipment - your desire to serve.

We can help you to larger profits.

Write for booklet -  
"PROFIT FROM THE DAILY GRIND"

# HUTTO ENGINEERING COMPANY INC.

515 Lyncaste Avenue.

Detroit, Michigan



# *The* Hutto Kit *opens*

The way to  
New and  
Greater Profits



## The Hutto Kit opens the Way to New and Greater Profits

The responsibility of the Hutto Engineering Company does not cease with the sale of its products. It is the policy of this company to give its patrons first aid by showing them how to increase their business and *profit from the daily grind.*

Therefore, the HUTTO KIT of merchandising ideas has been prepared for you, consisting of newspaper advertisements, letters and a series of direct by mail pieces, backing up the HUTTO PROCESS of refinishing cylinder bores, with a resultant increase in business for you.

*The HUTTO KIT will  
be first aid in producing  
a larger volume of business  
—it is yours for the asking.*



HUTTO ENGINEERING COMPANY INC.

515 LYCASTE AVE. DETROIT

*Profit From The Daily Grind*

# HERCULES ALL RIM SCREWTYPE RIM TOOLS



CAR OWNER SIZE  
MODEL "C. O."

**SIMPLE-LIGHT-STRONG-COMPACT-EFFICIENT-POWERFUL**  
THE RESULT OF YEARS OF EXPERIENCE IN THE MANUFACTURE OF RIM TOOLS  
A TOOL THE CAR OWNER WANTS AND IS BUYING AT A

LIST  
PRICE OF **\$3<sup>75</sup>**

**GUARANTEED IN EVERY RESPECT**  
**DEALERS MAKE A BIG PROFIT**

Because you are entitled to a larger discount than usually allowed on other accessories. If you don't get it or if your jobber is not stocked to supply you write us, we will see that you are served.

**OUR MODEL "A" HEAVY DUTY SHOP TOOL**  
**LISTS AT \$6.00**

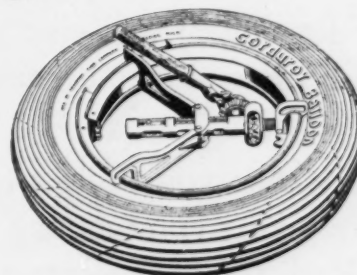
Same as Tool Shown Above Only Stronger

Small cut of Model "B" Tool more powerful than any other made. Capacity of a 10 ton jack and operates on the same simple principle. No effort required to operate it on the toughest rims. Guaranteed to last a life time.

These Tools take all sizes of rim. No adjustments.

**HERCULES PRODUCTS CO.**

St. Joseph, Michigan



List Price \$12.50



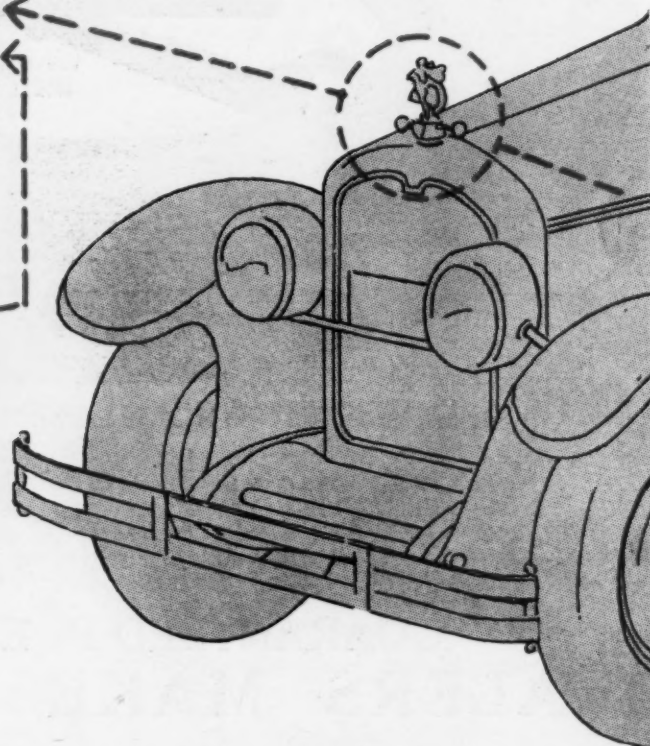
# OPPORTUNITY FOR

Accessories	List	Cost	Profit
Bumpers . . . . .	\$25.00	\$15.00	\$10.00
Step Plate . . . . .	3.00	1.80	1.20
Tire and Tube . . . . .	18.00	12.00	6.00
Tire Cover . . . . .	2.00	1.05	.95
Clock . . . . .	12.00	7.20	4.80
Light . . . . .	10.00	6.00	4.00
Cigar Lighter . . . . .	5.00	3.00	2.00
Heater . . . . .	5.00	3.00	2.00
Tire Lock . . . . .	3.00	1.80	1.20
Chains . . . . .	5.00	3.00	2.00
Moto Meter . . . . .	5.00	3.00	2.00
Monogram Gear Shift Ball	2.50	1.67	.83
Monogram Ornament . . . . .	3.00	1.80	1.20
Monogram Locking Cap . . . . .	4.00	2.40	1.60
Average Totals . . . . .	\$102.50	\$62.72	\$39.78

*for Car Dealers*  
in **MONOGRAM**  
*Accessories*



*These De Luxe Radiator Ornaments are in five styles to fit any car and any pocket book. Send for ornament literature.*



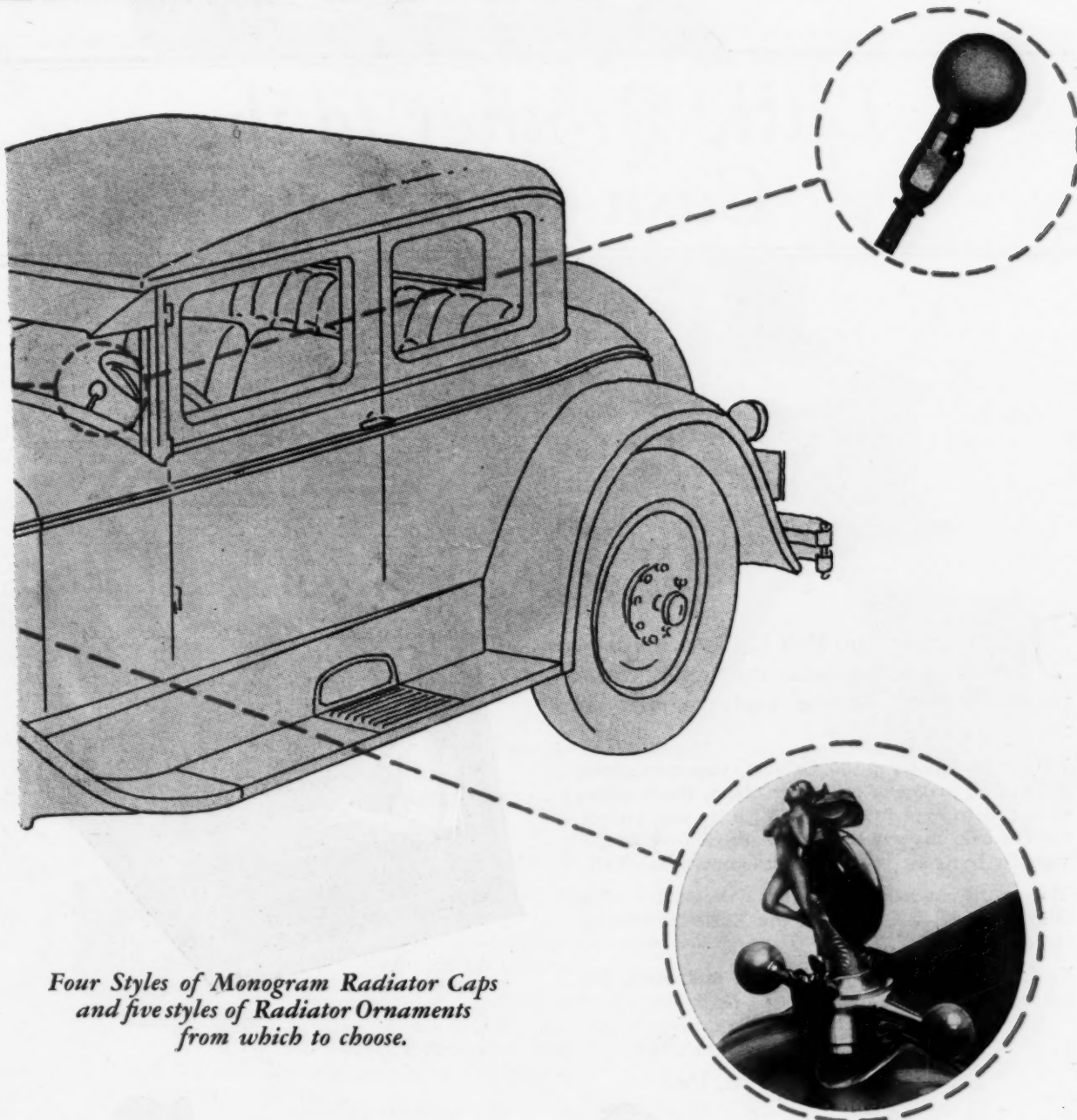
**M**R. Car Dealer: What will be your net profit, at the end of the year, after deducting your used car losses.

Your own National Automobile Dealers' Association tells you that accessories (dollar for dollar) will give you more than five times the profit that you can get from car sales. Make 5% net profit on your car sales by selling the right amount of accessories.

Every time you neglect to sell a new (or used) car without extra accessories you are taking good money out of your own pocket. MONOGRAM Radiator Caps, Radiator Ornaments and Onyx Gear Shift Balls insure you a much greater

**THE KINGSLEY-MILLER COMPANY, 600 WEST**

# EXTRA PROFITS



*Four Styles of Monogram Radiator Caps  
and five styles of Radiator Ornaments  
from which to choose.*

profit than 11% and help you put over many car sales. Four radiator caps, three gear shift balls and five DeLuxe radiator ornaments give you a balanced line to choose from for any car or pocket book.

Compare these profits.

Net profit per dollar on car sales—1 $\frac{6}{10}$ %

Net profit per dollar on accessories—11% (Your Association figures).

But you can make 26% if you buy from our jobbers. If you do not know a MONOGRAM Jobber in your locality write us. Ask us for literature.

**JACKSON BOULEVARD, CHICAGO, ILLINOIS**





---

## Little Brother to the Cash Register

---

**T**HE Gilmer Fan Belt Cabinet, in making sales, is the same marvel of compact efficiency as the cash register in recording sales.

From the Gilmer # 100 Cabinet you can serve 98% of all makes of cars with clean, fresh belts, arranged to expedite sales. With it, you attract the fan belt buyer who regards the Gilmer as the world's best, as well as best-known fan belt.

The result is a sales consistency that marks the Gilmer Fan Belt Cabinet as the "little brother to the cash register".

Your jobber carries the Cabinet and stock for its replenishment.

L. H. GILMER COMPANY  
Tacony, Philadelphia, Pa.



# Gilmer

Makers of the World's  
Best Known Fan Belts

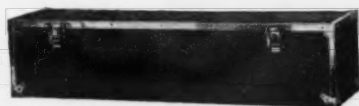
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# Bigler

## BETTER BUILT

# AUTOMOBILE LUGGAGE

Gives  
Dealers  
a  
Rapid Selling  
Complete  
Line



*Running Board  
Type*



*Fender Type  
Fit right or  
left side*

Attractive models  
especially salable be-  
cause of their superior  
manufacture.

*Right now is the time when automobile lug-  
gage moves fastest. Be prepared for quick  
turn over and profitable sales.*

Bigler Custom Built Motor Luggage is ready  
for immediate shipment to fit all cars.

Every requirement of the owner is met by  
one or the other of the trunks or camping  
outfits provided—all at reasonable prices, and  
all with discounts that pay.

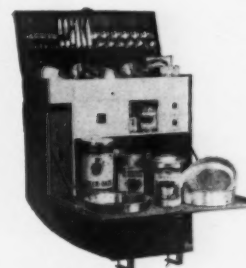
Four popular numbers are illustrated on this  
page. They are among the biggest sellers.  
Others are described and illustrated in litera-  
ture, available on request.

Bigler Custom Built luggage is manufac-  
tured exclusively for Motorists. Its new and  
special patented features add utility and con-  
venience readily appreciated by experienced  
motorists. That's why Bigler luggage sells  
easily and brings extra profits.

*Ask us for complete details, discounts, etc.*



*Ever Ready Tool  
Type*



*"Tourette"  
for Camping*

Two of the biggest  
sellers. Both exclusive  
and patented.

"BIGLER BUILT IS BETTER BUILT"

## BIGLER MANUFACTURING COMPANY

CHIPPEWA FALLS

High Street

WISCONSIN





LANDIS 



# Now-Easy Riding for the first time Greater Shock Absorber Opportunity

Amazing new engineering developments now open a greater opportunity in shock absorbers. Now, *real easy riding* is here. And price that takes you out of competition.

The Landis Shock Diffuser is a *hydraulic*. Not a hydraulic as you know hydraulics.

Here are five major points of Landis Shock Diffuser performance no ordinary shock absorber can be expected to deliver:

- True hydraulic resistance introduced at start of spring recoil.
- Spring "preloading" eliminated.
- Resistance to recoil in direct proportion to spring compressions.
- Maximum resistance at start of spring recoil.
- No interference with spring resiliency.

Landis Shock Diffusers bring *true control of spring recoil for the first time* . . . Nothing so far even approaches it.

Visualize, then, the opportunity the Landis Shock Diffuser brings you . . . Performance far ahead of all competition . . . Price that lifts you out of it. Write for the complete story today.

Landis Engineering & Mfg. Co.  
Waynesboro, Pa.

THE LANDIS  
IDEA OF  
EASY  
RIDING

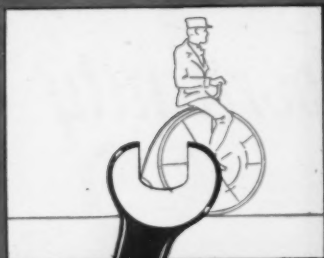


This book "The Landis Idea of Easy Riding" is receiving more comment than any other shock absorber literature. It covers the entire subject of shock absorbers. We will gladly send you a copy free if you will write us.

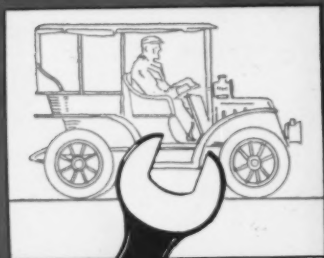
# Shock Diffuser



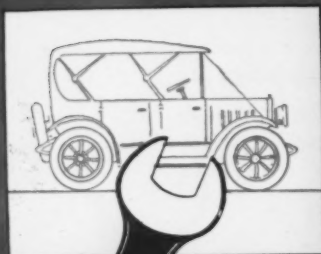
## THE "SUPERRENCH" - *And its Ancestors* Evolution of the Pear-Shaped Head



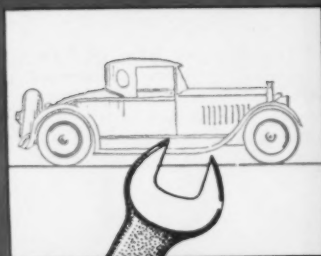
In 1888 the last word was Williams' Engineers Wrench - the first *standard line* with 15° angle opening ever made. It had brute strength, but its blunt jaws were awkward for use in cramped quarters.



Fourteen Years later came Williams' Carriage-Makers, or Light Service Wrench. It sacrificed some of its predecessor's strength, but its narrower jaws (the embryo pear-shaped head) were more efficient.



Williams' Structural Wrench shows another step forward. The jaws are pointed; the broader head provides greater strength. But—the limit has been reached—carbon steel can stand no more.



Today—Williams' "SUPERRENCH". Carbon steel has given way to super tough Chrome-Molybdenum, permitting narrower jaws and thinner, pear-shaped head. Best of all, "Superrenches" are far stronger—the toughest wrenches ever built—guaranteed *breakproof*.



**WILLIAMS**  
CHROME-MOLYBDENUM



**J. H. WILLIAMS & CO.**

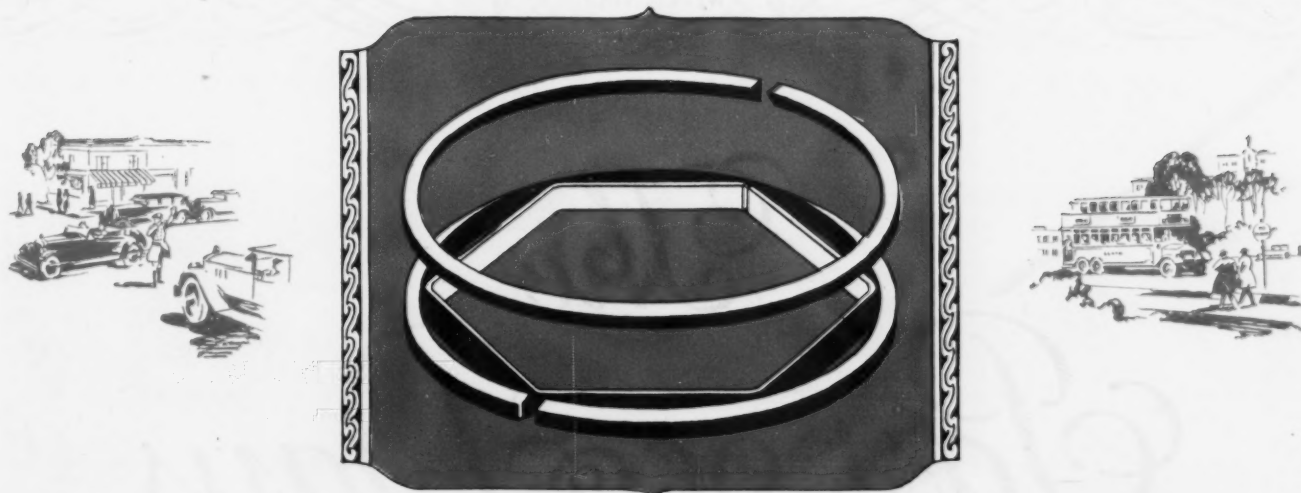
*"The Wrench People"*

New York

BUFFALO

Chicago

THERE IS NO SUBSTITUTE FOR PROFITS



**Panyard**  
TRADE MARK REGISTERED  
**RINGS**  
**ARE GUARANTEED**  
**FOR 15,000 MILES**

Today the car driver expects the utmost in an overhaul job. It is easy for you to give him more than he expects and *guarantee* it! He pays willingly if you deliver the goods, as he has been taught in many ways that the best is the cheapest—always.

You can positively forget the old methods of grinding, boring, honing and fitting pistons by installing *Panyard Piston Rings* in any job and at the same time *increase your profits!* Panyards create good will—that means more dollars for you! How could it be otherwise when you can depend on them to stop oil pumping and oil dilution—minimize piston slap—lessen carbon deposits—lessen cylinder wall wear—*increase gas mileage—*increase compression and give much more snap and power at all speeds?

Pretty healthy order isn't it, for only a piston ring? Just you try a set in your next job and then you'll swear by them as all Panyard users do.

Install  
Panyards.  
They stay  
on the job  
and make  
good.

*Write or wire for complete details.*

*Manufactured only by*

**Panyard Machine & Manufacturing Co.**  
**Detroit** **Michigan**





# The Past 90 Days WITH Marmon

## *Production*

Increased to 2500 units in April—and still 40 percent short of the demand. (Further increases for May.)

## *Distributors and Dealers*

Doubled since January 1—a present increase of approximately six new connections per day.

## *The Car in the hands of owners*

in many cases after 10,000 miles of use, is given the credit of being the greatest performer in the industry today—bar none. (Ask any Marmon owner frankly what he thinks about it.)

*These are a few of the reasons why everyone these days gives  
Marmon credit for having achieved a great new success.*

MARMON MOTOR CAR COMPANY . INDIANAPOLIS



A M E R I C A ' S   F I R S T   T R U L Y   F I N E   S M A L L   C A R



*Marmon production is now in full stride on all models.  
The small fine car idea is clearly the biggest single development of the year. Watch it grow.*



*the little*

**M A R M O N 8**

Throw your  
"thin dimes" away!

Put the small change back in circulation; the hoarding of thin dimes for spark plug setting has always been a source of worry. At best, the thin dime is a compromise: sets the gap too wide for easy starting, too thin for proper running.

With the Moto Meter self-adjusting spark plug the demands for quick, easy starting and proper running are, for the first time, completely satisfied in one plug. The spark gap of the Moto Meter plug is set cold at 15 thousandths of an inch and increases to 30 thousandths of an inch the instant the engine starts, doubling the length of the spark. Yet, when the engine stops, the gap adjusts itself to the original small opening.

This self-adjusting gap feature is not only exclusive with Moto Meter plugs, but outlaws thin dimes as makeshift gap gauges. Every Moto Meter plug is equipped with a brass gap gauge conveniently placed under the terminal nut; it is easily detached and replaced, simplifying checking and setting of gap exactly right (.015") for quick, easy starting.

The elusive thin dime has outlived its usefulness and the set, fixed gap has served its time!

THE MOTO METER COMPANY, Inc., Long Island City, N. Y.  
THE MOTO METER CO. OF CANADA, Ltd., Hamilton, Ontario  
The name Moto Meter is the registered trade mark and exclusive property of this company

# MOTO METER

TRADE MARK REG. U.S. PAT. OFFICE

## SELF-ADJUSTING SPARK PLUG



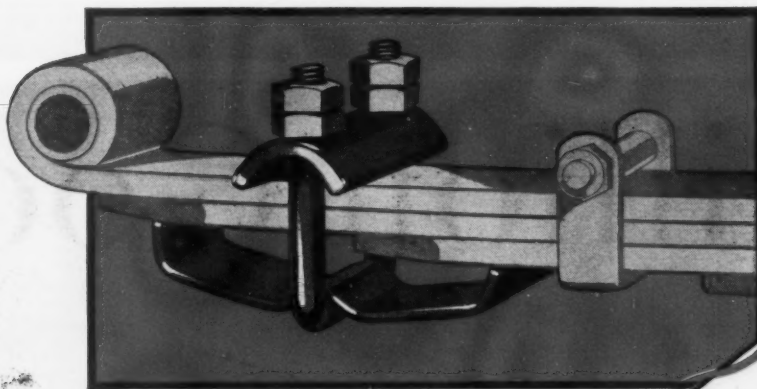
LIST:  
For Fords - - 75c  
Other Cars - - 90c  
Bus and Truck \$1.00  
(Heavy Duty)



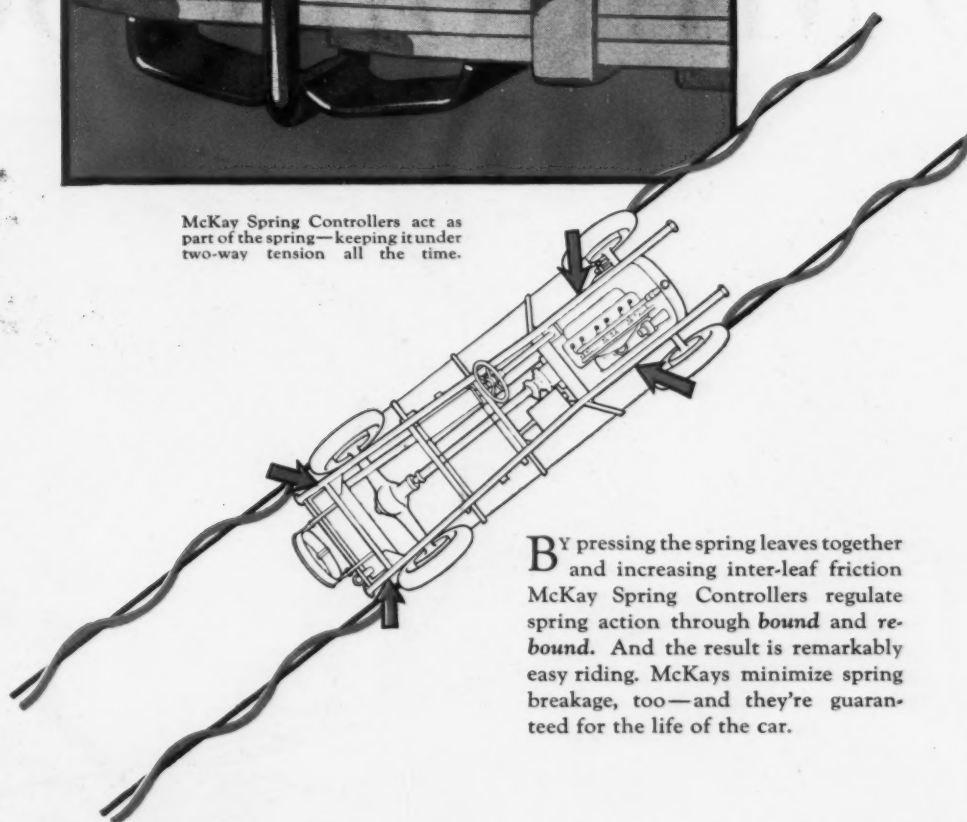
This small 15 thousandths spark gap means a hot, intensive spark for quick, easy starting.

This wide 30 thousandths spark gap gives a fast, strong spark and smooth running engine.





McKay Spring Controllers act as part of the spring—keeping it under two-way tension all the time.



By pressing the spring leaves together and increasing inter-leaf friction McKay Spring Controllers regulate spring action through *bound* and *rebound*. And the result is remarkably easy riding. McKays minimize spring breakage, too—and they're guaranteed for the life of the car.

## The simple story of a big seller

The important thing about the McKay Spring Controller is its ability to turn rough roads into smooth pavements. In this it is the equal of many a high-priced shock absorber.

But it had to be *simple*—so anybody could put it on. It had to be low in cost. It had to be easy to stock and sell—so it could be handled by dealers everywhere.

All it takes to put on a McKay Spring Controller is a few minutes' work with a wrench. No holes to bore. Spring clips are left in place. No complicated adjustment. No service needed.

Four uniform-size packages take care of ALL cars. Full list of cars and plain label of contents take out all lost motion at the selling end. Ask your jobber about this NEW McKay product or write us direct.

for FORDS

\$5<sup>00</sup>

for larger cars

\$6<sup>50</sup> and \$8<sup>00</sup>

UNITED STATES CHAIN & FORGING COMPANY, UNION TRUST BUILDING, PITTSBURGH, PA.

# McKAY SPRING CONTROLLERS

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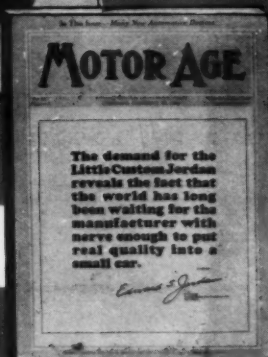
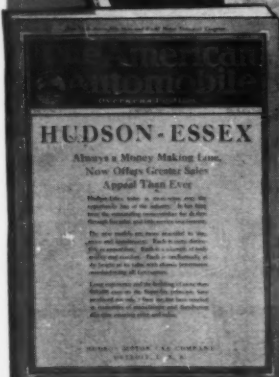
## McK

# 20 Million Good



These popular publications which carry the Multibestos national advertising are read by approximately 20,000,000 interested people. Many of these are or should be customers of YOURS.

In the class publications shown below, helpful messages about Multibestos are passed on to the retail accessory trade and repair and service organizations throughout the year.



# Reasons

FULLY 20,000,000 people—most of them owners of cars—read each issue on the list of publications carrying Multibestos National Advertising. The good-will created by the advertising makes each of those readers a very good reason for dealers, garages, service stations and repair shops to carry, feature and use Multibestos.

Experience always shows its value of identifying oneself with nationally advertised products. If you will carry Multibestos—and especially if you will let your trade know you carry it by using the effective dealer helps which are part of the service we render to every Multibestos dealer—you will not fail to reap prompt and satisfactory profit. May we send you details of the new Multibestos Profit Proposition?

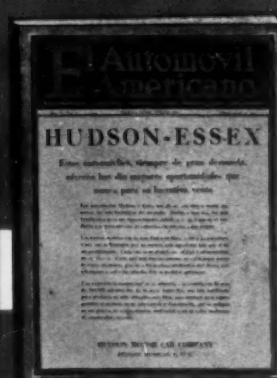
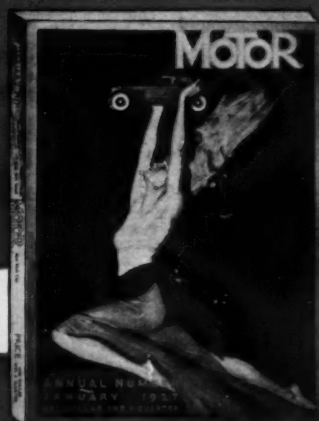
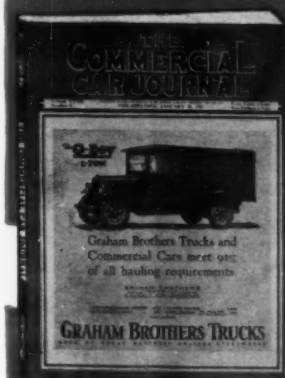
MULTIBESTOS COMPANY  
WALPOLE, MASS., U. S. A.

# MULTIBESTOS

RED U S PAT OFF

## BRAKE LINING

NATIONALLY ADVERTISED





# Do Your Shock Absorber Profits Melt Away?

## Switch to Chansons!

No sickening grief—no come-backs

You'll find that the liberal profit you make on every Chanson Shock Absorber sale is clear profit. You won't lose one week's profit on another week's come-backs . . . because Chanson construction has eliminated the sickening grief that eats up the money you make. No broken straps, no broken springs, no noise, no adjustment.

Equally important to the trade, in addition to the elimination of grief, is the fact that the patented principle of Chanson construction makes it possible to have only one size. Regardless of any difference in spring construction, Chanson Shock Absorbers will fit and function with maximum efficiency on any standard make of car, except Fords, which are taken care of by a special set of two.

Chansons are packed four to a set, with three sets of fittings so that you can fit any car and need never lose a sale because you happen to be out of a particular size to fit a particular make of car. No stock of complicated parts to be inventoried year after year.



# CHANSON Shock Absorbers



Chanson produces an even, soft, but powerful action, twice the length of any car spring. It instantly retards the rebound, and at the same time does not PRE-LOAD or tie the car springs down and cause the car to chatter over car tracks, cobble stones, and supposedly smooth roads.

Chanson has double the strap-travel of any other shock absorber, and is always set under full tension to instantly catch and smoothly release the rebound of any car springs without any signs of harshness. The strap never needs taking up as the tension on a Chanson is the same if the strap is pulled out two inches from the housing or twenty inches. Strap stretching due to settling of car springs due to the number of passengers does not affect the tension.

Chanson is always efficient because there are only three moving parts, designed 600% over-size so that nothing can shake loose or "wear loose" or require adjustment. The first adjustment is permanent.

*Ask Your Jobber's Salesman to Give You  
a Demonstration, or Write Us Direct*

**ILLINOIS IRON & BOLT CO. — CHANSON DEVICES DIVISION**  
Dept. 518 [Est. 1864] Carpentersville, Illinois  
**MAKERS OF CHANSON UNIVERSAL CAR HEATERS**

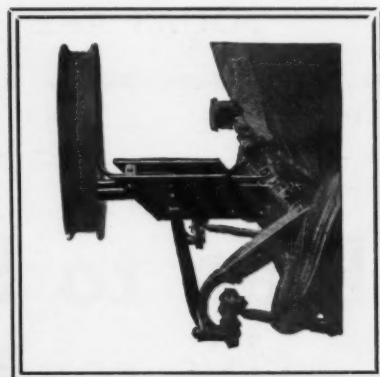
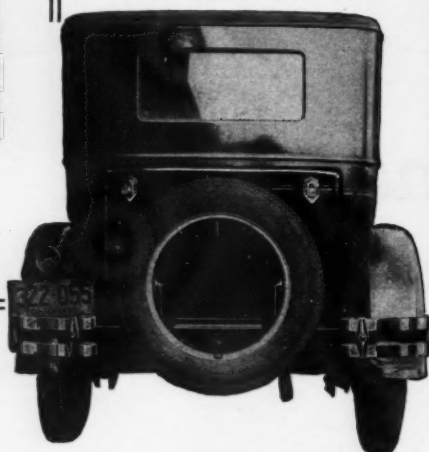
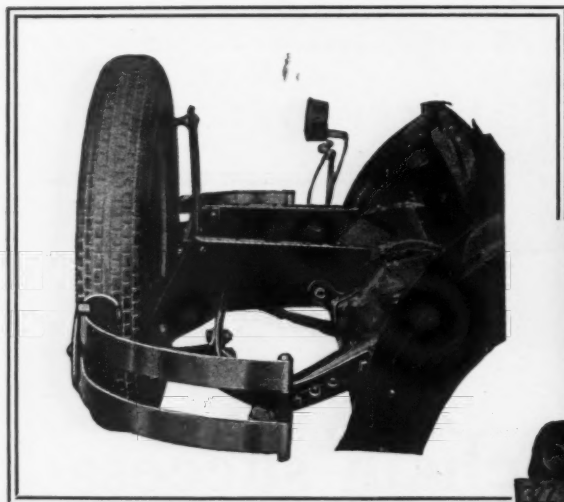
*Add a Lasting Thrill to any Motor*



Heat Treated for  
Uniformity, Strength  
and Hardness

**BOHNALITE**

Bohn Products include Ring True Bearings—Bohnalite Castings, semi-permanent, permanent mold and sand, Nelson Bohnalite pistons; we also supply the government with replacement pistons and bearings for the Liberty engine.



**Trunks**

**Trunk CARRIERS**

**Spare Tire Carriers, Bumperettes, Bumpers**

**A COMPLETE LINE FOR ALL CARS**

Bellevue "Chieftain" Bumpers and Bumperettes are made in 2 and 3-Bar types, oil-tempered spring steel, triple plated, polished. Made for all cars. GUARANTEED TO FIT.



The 1927 season is on, and with it comes the demand for trunks and carriers. Bellevue Trunks are made in 6 sizes, to be sold for those cars with luggage carriers as standard equipment, or in combination with the Bellevue Trunk Carrier. They are drawn from heavy gauge steel, finished with two coats of hard baked enamel. Will not sweat, warp, mildew or rumble. Luggage is perfectly protected by the rubber insulation which keeps out dust and moisture. Piano hinge, two nickel plated brass locks.

More motorists this year than ever before. Become the automobile luggage specialist of your town. IT PAYS. See your jobber or write us for complete catalog, prices, special discounts.

**THE BELLEVUE MFG. CO.**  
Bellevue, Ohio

# BELLEVUE

**Trunks, Trunk-Carriers, Pumps, Bumpers, Jacks**





## The Unique THOMA Merchandising Plan

Thoma & Son, Inc.,  
Fairfield, Iowa.

Please submit details of the "THOMA-DEALER'S FRANCHISE" and how we can Protect Car Owners against all Glass Breakage under the Thoma Replacement Glass Service Plan.

Dealer's Name.....

Address.....

Makes Cars Sold.....

# THE THOMA DEALERS FRANCHISE

offers the most unique Merchandising Plan ever designed for Automobile Dealers and exemplifies the greatest extension of confidence ever vested by any Manufacturer in their dealer and distributor clientele.

Accredits you an Authorized Thoma Service Station privileged to sell Car Owners Protection Against All Glass Breakage for less than a Penny a Day, and to Service Certificate Holders on their Replacement Requirements free of charge, and Thoma pays the bill.

Compels your Customers to come back to you for "Service" and links you up in a Nation-Wide chain of Factory Service Stations. A Double Profit for you in the Thoma Franchise. Available only to Thoma Dealers — Authorized Thoma Service Stations.

**THOMA & SON-INC.**  
Manufacturers  
Certified Automotive Glass  
Fairfield, Iowa

# VESTA

## Batteries

### *Nation-Wide Service for the Dealer Central Distributors Logically Located*

The entire United States is now logically divided among these progressive Vesta Centrals. As an indication of the growing favor for Vesta Batteries—both for motor cars and radio—this list has practically doubled in number since January, 1926. The thousands of dealers who sell and service Vesta Batteries will find this distributor service of the highest order of excellence.

#### Eastern

ALBANY, N. Y., Albany Motor Specialty Corp., 421 Orange St.  
ALLENTOWN, Pa., J. H. McCullough & Son, 1042 Hamilton St.  
BOSTON, Mass., Guaranty Distributing Co., 682 Beacon St.  
BRIDGEPORT, Conn., Battery & Elec. Service Co., 1412 Park Ave.  
BALTIMORE, Md., Automotive Electric Shop, 23 W. Mt. Royal Ave.  
BUFFALO, N. Y., J. Roy Stains, Inc., 1210 Main St.  
BROOKLYN, N. Y., Bushwick Auto Supply Co., 1755-57 Bushwick Ave.  
HARRISBURG, Pa., J. H. McCullough & Son, 19 N. Cameron.  
NEWARK, N. J., Essex Distributing Corp., 40-44 William St.  
NEW YORK, N. Y., Automobile Necessities Co., 521 W. 125th St.  
PITTSBURGH, Pa., Axwell Equipment Co., 240 Second Ave.  
PHILADELPHIA, Pa., J. H. McCullough & Son, 257 N. Broad St.  
READING, Pa., J. H. McCullough & Son, 109 N. 9th St.  
WASHINGTON, D. C., Leeth Brothers, 1307 L St., N. W.

#### Southern

ATLANTA, Ga., Dinkins-Davidson Hardware Co., 30 Central Ave.  
COLUMBIA, S. C., Gibbs Machinery Co., Assembly & Wheat Sts.  
CLEARWATER, Fla., Automatic Equipment Co.  
DALLAS, Texas, The Schoedkopf Co.  
JACKSON, Miss., Orgill Brothers Co.  
JACKSONVILLE, Fla., Consolidated Automotive Co., N. W. Cor. Forsyth & Stuart Sts.  
KNOXVILLE, Tenn., "75" Tire Co., Depot and Williams St.  
LITTLE ROCK, Ark., O. D. Tucker IV & Co., 209 W. Third St.  
LOUISVILLE, Ky., Louisville Auto Supply Co., 754 S. First St.  
MEMPHIS, Tenn., Orgill Brothers Co., 32 West Calhoun St.  
NASHVILLE, Tenn., J. T. Blair Co.  
NEW ORLEANS, La., Walther Battery & Equip. Co., 722 Howard St.  
OKLAHOMA CITY, Okla., J. B. Burwell Supply Co., 323 N. Broadway.  
RICHMOND, Va., Benton-Bailey Co.  
SAN ANTONIO, Texas, Southern Equipment Co.  
ST. PETERSBURG, Fla., Ace Automotive Co.  
TAMPA, Fla., G. Norman Baughman Co., Florida Ave. at Jackson St.



ISOLATORS  
LOCK THE PLATES APART—

### VESTA ISOLATOR BATTERY LEADS A COMPLETE LINE—

This is the battery that has no competition, as no other battery has the Isolators—a patented Vesta feature—that minimizes plate buckling and short-circuiting. This, with our standard Vesta-Vaco line gives a complete price range to cover the dealers entire trade requirements.

#### Middle West

BLOOMINGTON, Ill., The E. B. Collins Co.  
CHICAGO, Ill., Vesta Battery Corp. (Factory), 2100 Indiana Ave.  
CHAMPAIGN, Ill., The E. B. Collins Co., 117 N. Walnut St.  
CINCINNATI, Ohio, The Fisher Aeschbach Co., 223 Walnut St.  
CEDAR RAPIDS, Iowa, Cedar Rapids Storage Battery Co., 113 South First St., W.  
CLEVELAND, Ohio, Vesta Battery Sales Co., 1801 E. 21st St.  
COLUMBUS, Ohio, Schaefer Bros. Auto Supply Co., 139 E. Gay St.  
DANVILLE, Ill., The E. B. Collins Co.  
DAVENPORT, Iowa, Eppings Electrical Service Co., 325 Harrison St.  
DECATUR, Ill., Fred Campbell Auto Supply Co., 332 E. Main St.  
DETROIT, Mich., Michigan Automotive Supply Co., 41 Harper Ave.  
FORT WAYNE, Ind., Gabriel Snubber Sales & Service, 724 Barr St.  
INDIANAPOLIS, Ind., The E. B. Collins Tire Co., 105 W. Michigan St.  
KANSAS CITY, Mo., The Faeth Co., 1117 W. 8th St., Uptown Store, 1617-19 Grand Ave.  
LAFAYETTE, Ind., The E. B. Collins Co.  
MADISON, Wis., Chas. T. Rieder, 635 University Ave.  
MILWAUKEE, Wis., Kaestner Battery & Electric Service, 416 Cedar St.  
MINNEAPOLIS, Minn., Reinhard Brothers Co., Inc., 11-17 S. 9th St.  
MINOT, N. D., Reinhard Bros. Co., Inc.  
OMAHA, Neb., W. J. Powers Co., 2212 Harney St.  
OTTUMWA, Iowa, Auto Electric Co., 232 E. Second St.  
ST. LOUIS, Mo., Fred Campbell Auto Supply Co., 2806 Locust Blvd.  
TERRE HAUTE, Ind., Fred Campbell Auto Supply Co., 650-8 Walnut St.  
TOLEDO, Ohio, The Fort Meigs Electric Co., Detroit and Norwood Sts.

#### Rocky Mountains and Pacific Coast

DENVER, Colo., The Equipment Service Co., 13th at Lincoln.  
LOS ANGELES, Calif., McClelland-Felthouse Corp., 1358 S. Figueroa St.  
PORTLAND, Ore., James F. Morrell & Co., Inc., 88-90 N. Eighth St.  
SALT LAKE CITY, Utah, The Salt Lake Hardware Co.  
SAN FRANCISCO, Calif., McClelland-Felthouse Corp., 515-517 Eddy St.  
SPOKANE, Wash., Spokane Battery & Ignition Co., 1301 W. Sprague Ave.

#### Canada

WINDSOR, Ontario, Arthur O. Secord, Canadian Representative.

## VESTA BATTERY CORPORATION

2100 Indiana Ave., Chicago, U.S.A.

Makers of quality Automobile Batteries for 30 years. Also makers of a complete line of Radio "A" Batteries, Radio Light Socket "A" Unit, Trickle Charger and Quality Tubes

-----WRITE NAME ON THIS COUPON-----

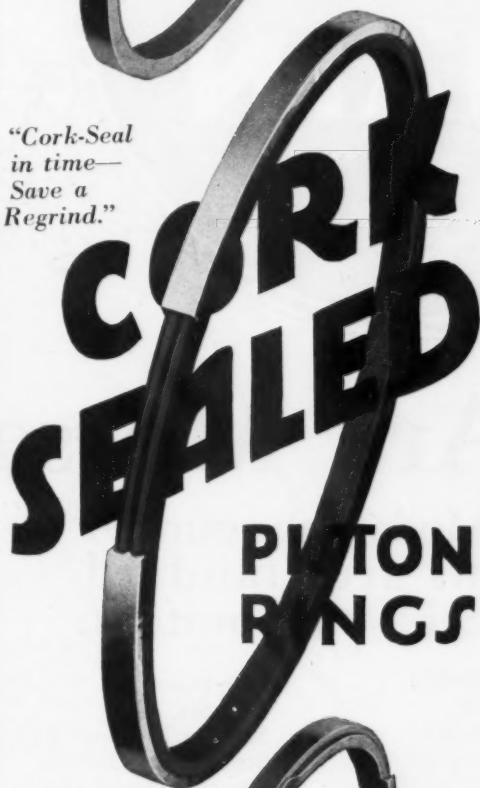
Vesta Battery Corporation, 2100 Indiana Ave., Chicago, U. S. A.

Please have the Vesta Central Distributor near me submit the Vesta Dealer Plan and the new battery prices.

M.A. 6-5-27

Retail  
25cDeLuxe  
Step-Cut  
Ring

"Cork-Seal  
in time—  
Save a  
Regrind."

CORK  
SEALED  
PISTON  
RINGSDeLuxe  
Relief  
Ring50c  
Retail

## You Can Meet Every Piston Ring Requirement With These 3 Great Rings

It is essential for every dealer to have one piston ring that sells at a price.

To take care of this demand we have for you the DeLuxe Step-Cut Ring, individually cast of tough grey iron. **The price is only 25c.**

The Cork-Sealed Piston Ring is a ring that sells fast and profitably to the great number of owners who figure costs by performance, and appreciate the value of specialized rings.

Cork-Sealed Rings are built on the principle of a **packing ring**, which prevents wear, loss of power, blow-by and piston slap. Thousands are being used for replacement.

The DeLuxe Relief Ring relieves oil troubles and is especially affective in conjunction with Cork-Sealed Rings.

Write for complete information on the entire line.



Liberal discounts to dealers and jobbers.

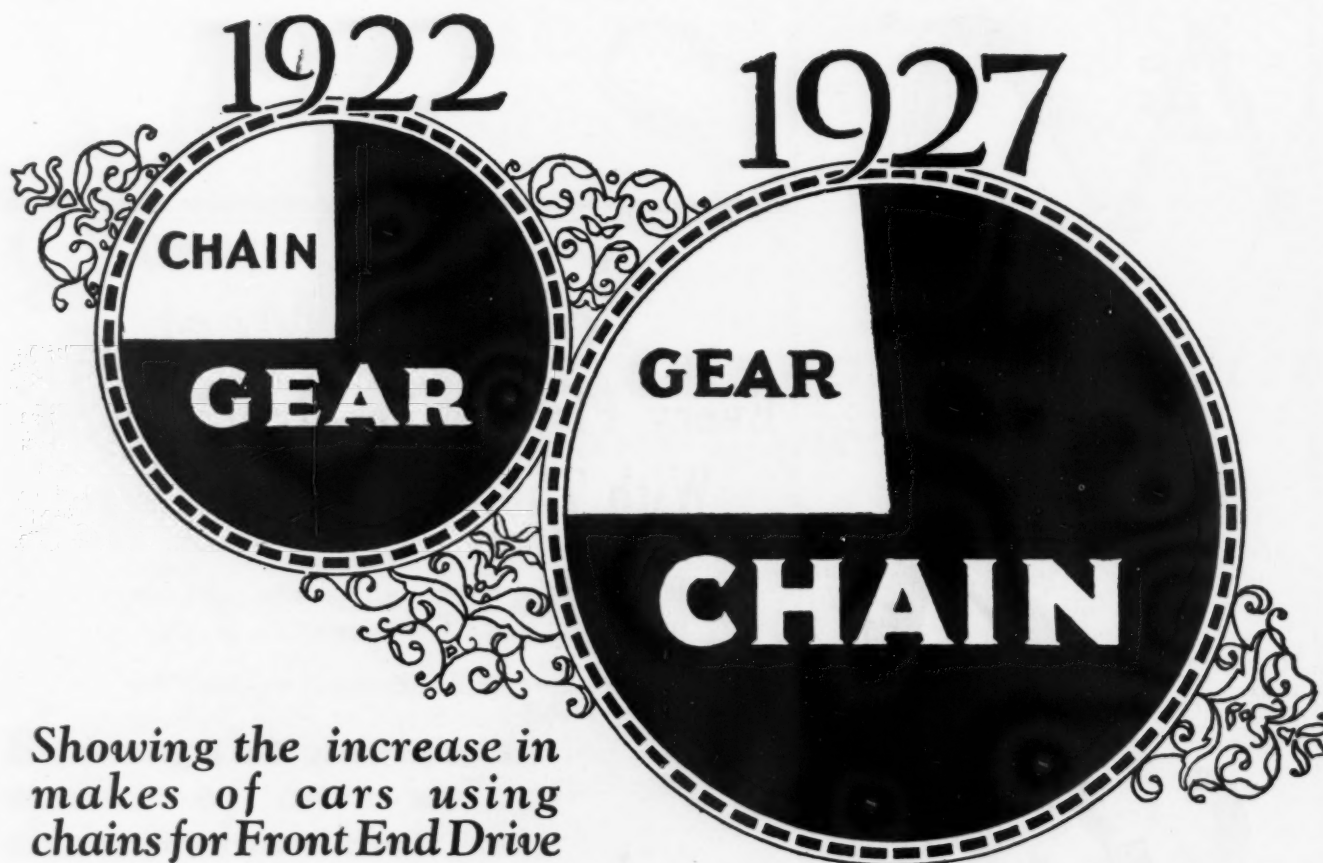
**The Cork-Sealed Piston Ring Corporation**

2332 Michigan Ave., Chicago

Factory: Denver, Colo.

Canadian Distributor: Cork-Sealed Ring Co., Toronto, Canada





*Showing the increase in makes of cars using chains for Front End Drive*

## Most of Them Are Morse

Including practically all the New Models announced this year, Morse Silent Chains are standard equipment on the following cars and motors:

Adler Standard Six  
Cadillac Eight  
Chandler Big Six  
Chandler Special Six  
Chandler Standard Six  
Chrysler Six (60)  
Chrysler Six (70)  
Chrysler Six (80)  
Davis Six (92)  
Davis Six (93)  
Diana Eight  
Erskine

Essex Six  
Fiat Six—(5-90)  
Flint Six (Jr.)  
Flint Six (60)  
Flint Six (80)  
Hudson Six  
Hupmobile Six  
Hupmobile Eight  
Jordan Eight (GL)  
Jordan Eight (L)  
LaSalle  
Lincoln Eight

Moon Six (6-60)  
Oakland Six  
Oldsmobile Six  
\* { A manufacturer of high  
grade Sixes and Eights  
\* —name on request.  
Peerless Six (72)  
Peerless Six (80)  
Pierce Arrow (80)  
Pontiac Six  
Reo  
Rickenbacker Six  
Rickenbacker Eight

Star Four  
Star Six  
Stearns K Four (B)  
Stearns K Six (75)  
Stearns Model G-8  
Continental Motors  
*Used in a number of the cars listed.*  
Engine Models W-5  
6-E 7-U 7-Z  
8-S 8-U 9-K  
9-L 11-U 12-Z  
14-L 14-U 20-L

MORSE CHAIN COMPANY

Sales and Engineering Office  
DETROIT, MICHIGAN

Main Office and Works  
ITHACA, NEW YORK

**MORSE**  
GENUINE SILENT CHAIN

# High Quality—Low Price—Attractive Profit. This trio works for you when you take on Splitdorf Spark Plugs

THE dealer who handles Splitdorf Spark Plugs sells unexcelled quality at an advantageous low price without reducing his profits. Such a happy combination builds the most satisfactory kind of business.

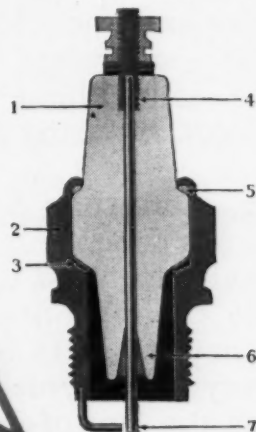
All Splitdorf Spark Plugs are standard first quality, of advanced design, made of selected best-grade materials. The sectional view shows the construction of the one-piece plug.

The low price—fifty cents—encourages their purchase in quantities to replace whole sets of old plugs. Spark plug replacements should be made in sets anyhow. One new plug won't tune up a motor. It takes a set of new plugs to make the engine purr, to put speed and power into performance.

The dealer who takes on Splitdorf Spark Plugs does not sacrifice his profit in the low retail price. He makes as much or more than he would on other plugs.

Put the Splitdorf combination of High Quality, Low Price and Attractive Profit to work for you. See your jobber or write us.

There is a Splitdorf Spark Plug for every type of engine. Every plug tested at the factory for electrical and mechanical perfection. Splitdorf Electrical Company, 392 High Street, Newark, N. J. *Subsidiary of Splitdorf-Bethlehem Electrical Company.*



## *All this for fifty cents*

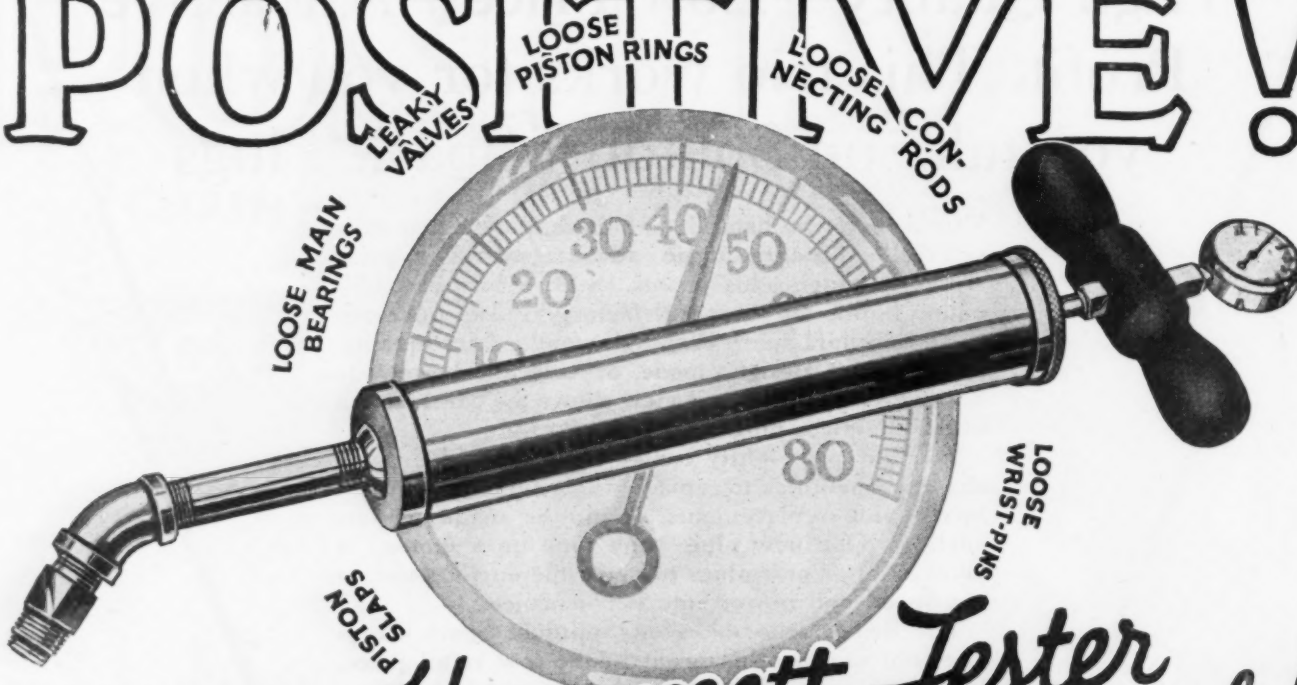
1. Splitdorf high test porcelain.
2. One-piece construction.
3. Special copper-asbestos gasket seat to protect porcelain.
4. Center electrode threaded and cemented solid into insulation.
5. Compressed copper gasket protects porcelain and makes joint gas-tight.
6. Semi - petticoat anti - carbon construction.
7. Special corrosion-resisting alloy steel electrodes.

Reg. U. S.  
Pat. Off.

Established  
1888



# POSITIVE!



*The Hammett Tester  
tells you the whole truth!*

## In 15 Minutes--

The Hammett Motor Tester efficiently makes this complete test:

Tests compression . . . .  
locates piston pin, connecting rod and main bearing knocks . . . locates leaky valves and rings, one cylinder at a time.

By the Hammett method, each part needing repair is instantly located without loss of time in taking down the motor or by guess work.

The Hammett is guaranteed to do the work. Order through your jobber.

Dealer Price

**\$13.50**

A-16

THERE is one positive way that you can quickly tell each customer what his motor troubles are—how long it will take you to do the job—and what the total repair charge will be—all without running or taking down the motor. By using the *Hammett Motor Tester*.

Today, more than 5,000 progressive Service Shops are depending upon this practical testing device to speed up their repair work and double their profits. The *Hammett Motor Tester* never fails to tell you the whole truth on every job in which it is used. It is as positive as the law of gravitation—unfailing as the march of time! The *Hammett Motor Tester* is an indispensable unit of modern shop equipment and modern shop practice.

# HAMMETT MOTOR TESTER

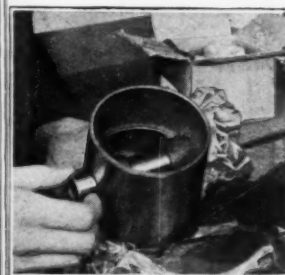
Manufactured by

HAMMETT MANUFACTURING CO.  
13th and OAK STREETS KANSAS CITY, MO.





Arrow Head's most complete and flexible up-to-date line assures quick service on the 4000 most-called-for fits and applications, including practically "all motors, all years, all models."



"This is the complete Arrow Head piston-and-pin assembly, which relieves you of try-fitting and intricate machining or inspection of pistons and pins."

## "Our Piston and Pin Stocks Flow in as Needed—from Arrow Head"

"Pistons and pins are the least of our troubles," a motor manufacturer recently told the executive of another plant.

"As you came through, you didn't notice any automatic machines working on pistons and pins, did you? No heat treating equipment? No piles of unfinished or finished piston stocks? No piles of rejected or porous castings? No unbalanced inventories of pistons and pins for the models we manufactured 5 and 10 years ago?

"We're rid of all that—and more. By doing one thing bigger and better, Arrow Head made itself logical headquarters for pistons and pins. We recognized the economic soundness of their service and turned our whole problem of equipment and replacement pistons and pins over to them. They manufacture to our specifications and keep us supplied in accordance with our requirements. And their branches at strategic points fit splendidly into our service program."

May we tell you how Arrow Head service on equipment and service piston-and-pin assemblies can help you make money?

ARROW HEAD STEEL PRODUCTS COMPANY

Buffalo

MINNEAPOLIS, MINNESOTA

Chicago

# Arrow Head

**Pistons   Piston Pins   Axle and Drive Shafts**

Atlanta   Boston   Cleveland   Dallas   Kansas City   Los Angeles   New York   San Francisco

Tomorrow the All-Steel Body will be an obligation—to-day it's an opportunity. Now is the time to ride on the crest of the wave.

EDWARD G.

**BUDD**

MFG. CO.

*Philadelphia and Detroit*



*Originators of the All-Steel Full-Vision Automobile Body*

# FREE!

## Schrader

# "REDDY SELLER"

### Built like a slot machine

*Keeps your stock orderly and  
releases one box at a time.*

THE new Schrader "Reddy Seller" is a red metal display cabinet, RED to attract attention—READY to increase your sales. Small, compact, convenient, attractive—a constant reminder to customers to buy Schrader products. Comes FREE with this small assortment of fast-selling items.

3 No. 4996-A Balloon Tire Gauges	\$3.39
1 No. 1561 Tire Gauge (for high pressure tires)	1.00
1 No. 5186 Tire Gauge (for truck or bus tires)	1.25
150 No. 4000 Valve Insides	5.93
75 No. 880 Valve Caps (for straight valves)	3.00
25 No. 935 Valve Caps (for bent valves)	1.00

Regular dealer's price of contents purchased separately.....\$15.57

Dealer's price of the Schrader "Reddy Seller" packed with above assortment.....\$15.00

\*Subject to 2% Cash Discount. This assortment retails at \$22.60.

Get this assortment. Put the Schrader "Reddy Seller" to work for you. Sign and send the coupon NOW.

A. SCHRADER'S SON, Inc., BROOKLYN  
Chicago Toronto London



A. Schrader's Son, Inc., Brooklyn, New York

Please have my Supply House send me the new \$15.00 assortment of fast-moving Schrader items, packed in the new Schrader "Reddy Seller" cabinet, which is to be included FREE.

Name of Dealer

Address

Name of Supply House

Address



**McFARLAN—Continued**

**Model TV, 6-cyl.:** 141½" W. B.; 33x6.75 B. tires; Firestone rims; own motor, T head; 4 main bearings; carbon steel connecting rods; helical gear camshaft drive; aluminum pistons, 572.6 cu. in. displacement; pressure lubrication to all bearings; Swan carburetor; single plate Borg and Beck clutch; full floating rear axle; Torque arm drive; semi-elliptic springs, front 40"x2½", rear 64"x2½"; Ross cam and lever steering gear; Bowen chassis lubrication; Brown-Lipe transmission; De Jon electric system; Willard battery; pressure fuel feed; hydraulic 4-wheel brakes.

**Model Straight 8, 8-cyl.:** 131" W. B.; 33x6.20 B. tires; Firestone rims; Lycoming model 4H motor; L head type; C. I. pistons; 298.7 cu. in. displacement; chain camshaft drive; 5 main bearings; carbon steel connecting rods; Swan carburetor; Delco electric system; Willard battery; pressure lubrication to all bearings; single plate Borg and Beck clutch; Ross cam and lever steering gear; Bowen chassis lubrication; vacuum fuel feed; hydraulic 4-wheel brakes; Timken axles; rear semi-floating; Torque arm drive; semi-elliptic springs, front 39"x2", rear 58"x2½".

Model	Year	Type and Copy.	Natl. Avg.	Cyl.	Stroke	No. Rings	Ring Wd.	HP	F.O.B. Price	Serial Numbers	Wt.	G.R.	Exh. Diam.	Cr.Cs. Qt.	Rad. Gal.	Lens Size
142	1921	Roadster—2	\$101	6	4½x6	3	½	48	\$6300	21000-21500	4300	3.65	3½	7	8	9½
145	1921	Sport—4	103	6	4½x6	3	½	48	6300		4700	3.65	3½	7	8	9½
147	1921	Touring—7	84	6	4½x6	3	½	48	6300		4700	3.65	3½	7	8	9½
151	1921	Tow	132	6	4½x6	3	½				490		3½	7	8	9½
153	1921	Co	46	6	4½x6	3	½						3½	7	8	9½
154	1921	Co	46	6	4½x6	3	½						3½	7	8	9½

430 Pages Covering 129 Makes

**The Yellow Book**

## Five Dollars Spent Now STOPS USED CAR LOSSES For a Year

If Your Used Car Service Doesn't Give All This Information—

Model of Car  
Passenger Capacity  
H. P. Rating Table  
Wheel Base  
Tire Sizes of Each Model  
Rim Make  
Motor Model and Type  
Number Main Bearings  
Connecting Rod Material  
Piston Material  
Piston Displacement  
Engine Lubrication  
Carburetor Make  
Clutch—Make and Type

Axles—Make and Type  
Steering Gear Make & Type  
Spring Type, Length and Width  
Emergency Brake Operation  
Chassis Lubrication  
Transmission Make and Type  
Ignition Make  
Battery Make and Capacity  
Water Circulation  
Oil Pump Type  
Fuel System  
Torque Drive

Brake Make and Type  
Snubber Make  
OFFICIAL NATIONAL  
AVERAGE APPRAISAL  
Number of Cylinders  
Bore and Stroke  
Number of Rings per Piston  
Width of Rings  
Horsepower  
F. O. B. Price  
Serial Number  
Serial Number Location  
Weight

Gear Ratio  
Exhaust Pipe Diameter  
Crankcase Capacity  
Radiator Capacity  
Lens Sizes  
Truck Data  
Hose Connections  
Fan Belt Size  
Brake Lining Length, Width and Thickness  
Mazda Lamp Numbers—Head, Auxiliary, Cowl, Tail, Instrument Board

### Buy The Yellow Book—It Does

It sells for approximately one-third the cost of other services—

Yet contains all that's in Both "Master" and "Pocket" editions of other services—

Is compiled in the same way by dealers throughout the nation and—

#### It Fits the Hip Pocket

You'll find The Yellow Book in the office of nearly every finance company. It's the information they use.



Complete  
Service  
for  
ONE YEAR  
\$5



NATIONAL  
USED CAR  
SERVICE  
Chambersburg, Pa.

# Two more world records for ETHYL

On March 30, at Daytona Beach, Major Segrave drove 203 miles an hour in his special 24-cylinder "Mystery" car. *He used Ethyl Gasoline.*

On April 11, at Muroc, California, Frank Lockhart set a new A. A. A. world's record by driving his 91-cubic-inch Miller special more than 164 miles an hour. *He too used Ethyl Gasoline.*

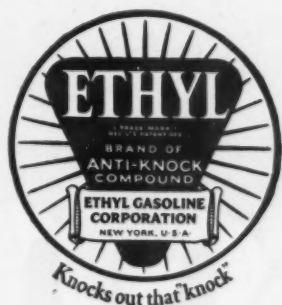
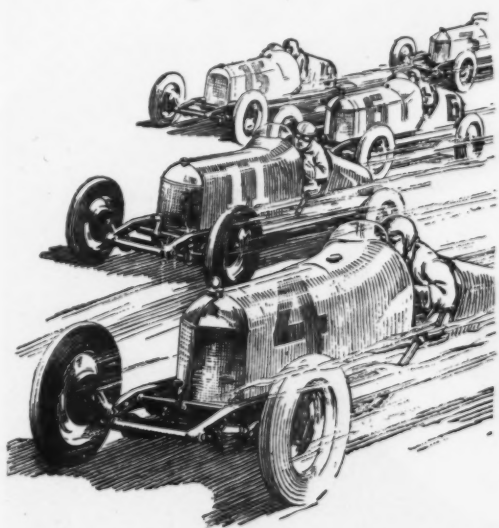
NOT by chance was Ethyl Gasoline used in the establishment of these records. This super-fuel has been the choice of racing car drivers for the last four years. It is now generally employed wherever unusual performance by a gasoline engine is desired.

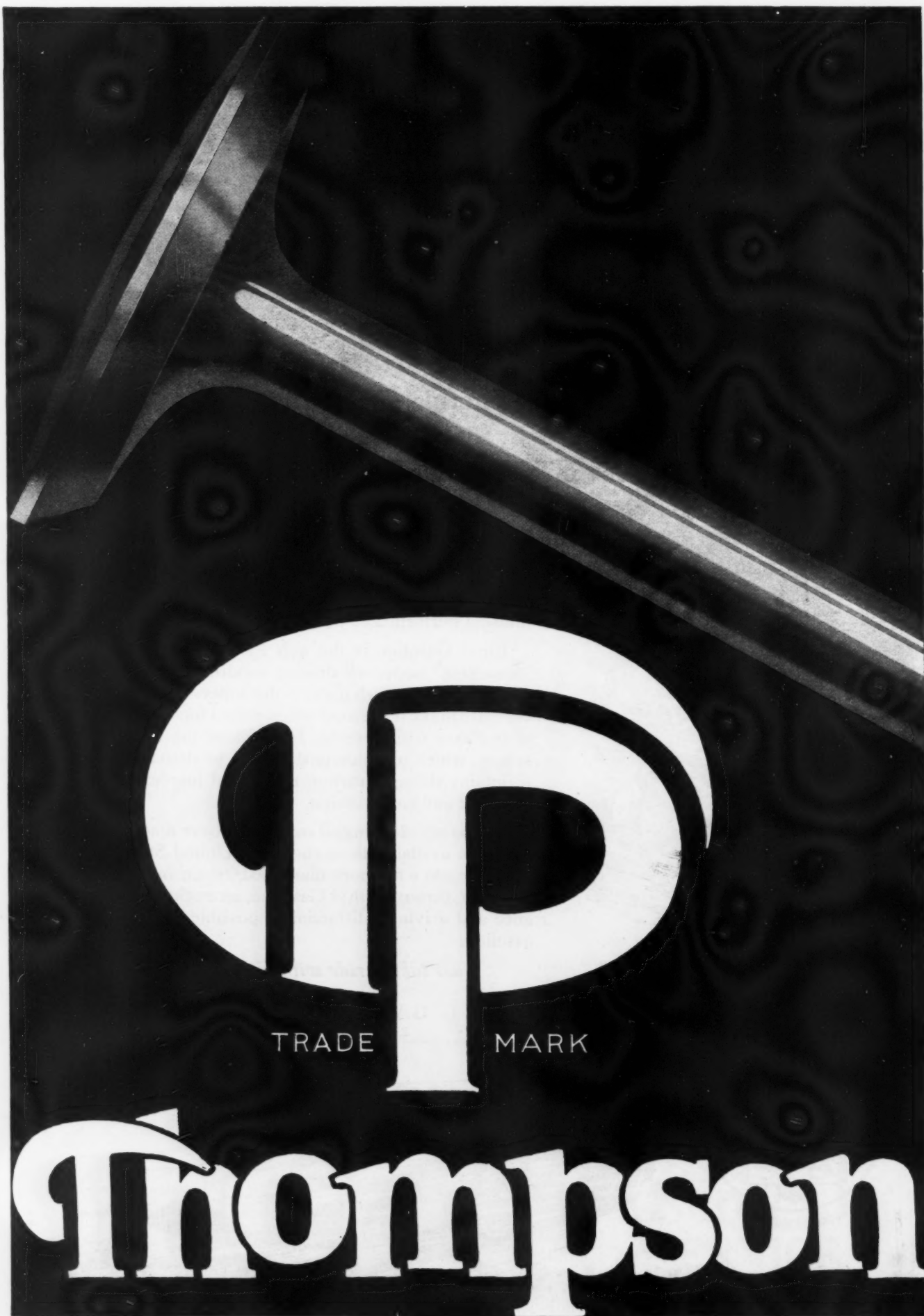
Ethyl Gasoline is the *only* fuel which eliminates "knocking" under *all* driving conditions. The same characteristics which make it the super-fuel for racing cars also make it the most efficient fuel for automobiles of ordinary compression. It develops the maximum r. p. m. which a motor is designed to deliver and it maintains them as carbon forms and increases temperature and compression.

That is why leading oil companies have made Ethyl Gasoline available throughout the United States and Canada; and why more than 1,000,000 car owners are enjoying, through Ethyl Gasoline, an engine performance and driving satisfaction impossible with regular gasoline.

*Just take a ride with Ethyl yourself!*

ETHYL GASOLINE CORPORATION  
25 Broadway, New York City







## FOR THOSE LOW-PRICED CARS

*Does the low-priced car need a good valve?*

Yes—more than any other—because most of them have only four cylinders—and when one valve in eight is sealing badly you lose more pep and power than when it's only one in twelve or sixteen.

*Does the owner want a good valve?*

Yes—listen to the way these owners talk about the performance of their cars.

—and don't forget that over 80% of all valve replacements are in low-priced fours and sixes. You can sell a lot of them with our "triple-choice" selling plan. Ask about it.

THOMPSON PRODUCTS, INCORPORATED  
General Offices: Cleveland, Ohio, U. S. A.      Factories: CLEVELAND and DETROIT

✓ Don't forget that  
Thompson Distributors  
also handle Thompson  
Bolts and Thompson  
Starting Cranks.



# Valves



**"That's it-right there"**

No hesitation—no unsatisfied withdrawal—no half-pleased customers—when there is a WC1 Display Case to select from. There they are in plain sight. The tool-buyer compares them, measures them up beside his own visualized knowledge of the job to be done and gets exactly the one he wants.

Every tool is tagged with its correct catalog number and retail price. This makes it easy for a customer to quickly select what he wants and for the dealer to reorder. The size of the Display Case is  $24\frac{1}{2} \times 48\frac{1}{2}$ , and is furnished at the price of the tools only, with no charge for the Case.

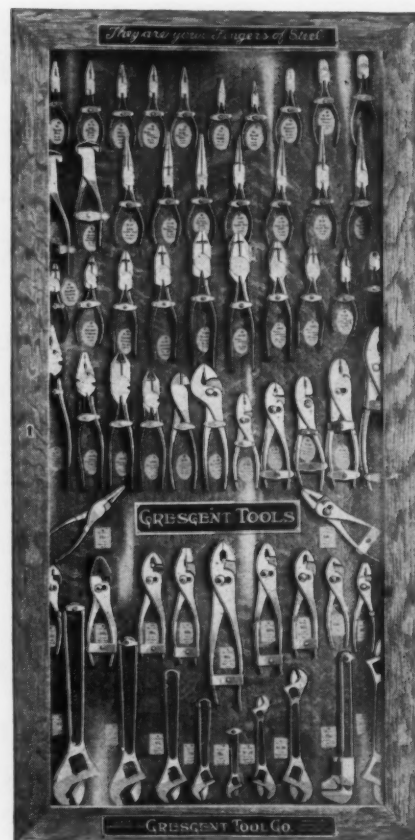
If you haven't yet obtained a WC1 Display Case, let us send it, through your jobber, in time to help you meet the spring demand for Crescent and Smith & Hemenway Wrenches, Pliers and other small tools.

**CRESCENT TOOL COMPANY**

208 Harrison St., Jamestown, N. Y.

# CRESCENT and Smith & Hemenway TOOLS

*Made under the supervision of and guaranteed by the originators of the Crescent Wrench.*

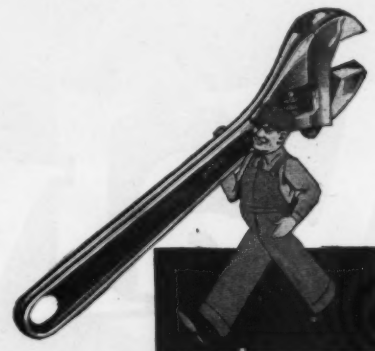


**59 best sellers  
at a glance**

The wrenches and pliers in the WC1 Display Case are fast-selling types and sizes. They are in constant demand among car owners, electricians, farmers and general tool-users.

\* \* \*

Below is illustrated one of the Crescent cutouts for displaying wrenches and pliers. They are supplied in sets of six to all dealers handling Crescent and Smith & Hemenway Tools who wish to use the cutouts for window or counter display.



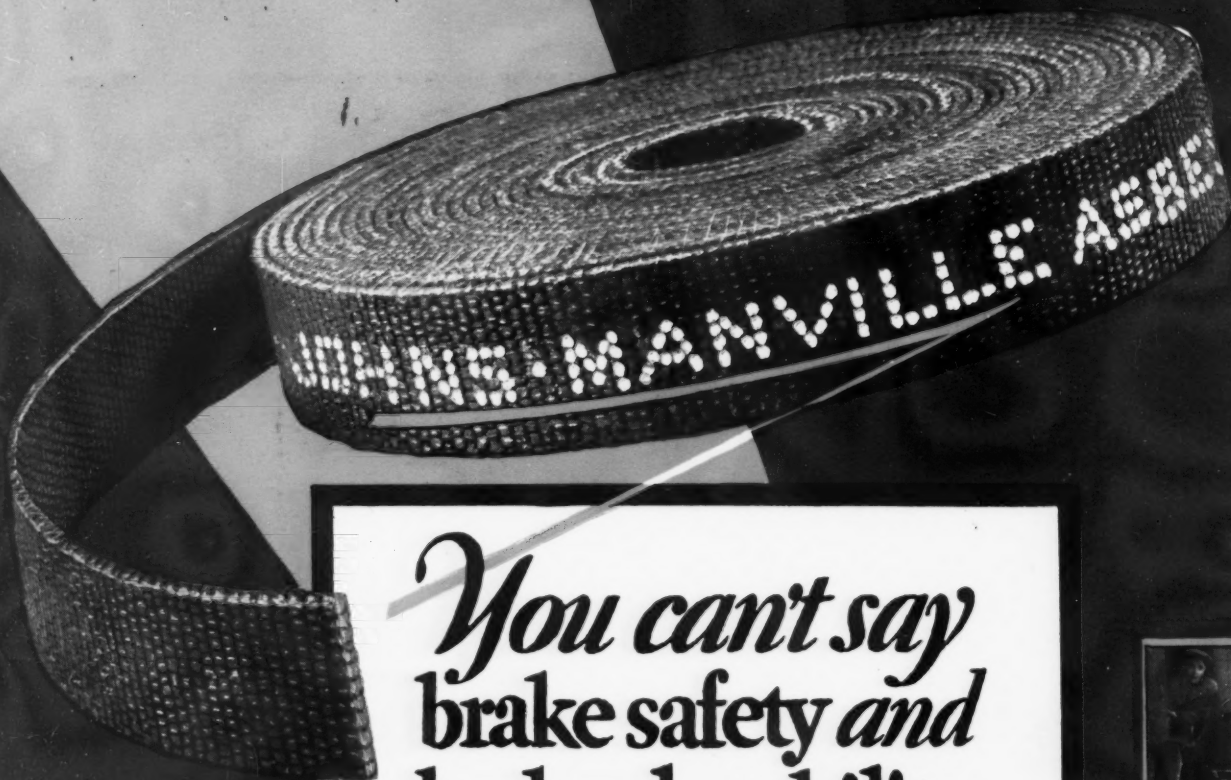


"*Oh yes*"  
he says –  
"they're *the*  
asbestos people"

*underlined by us because  
that's the way people  
think of JOHNS-MANVILLE  
"the" asbestos people*







# *You can't say brake safety and brake durability any quicker*

When you've said Johns-Manville you've said everything about anything asbestos. If you're talking of brake lining, you've said dependability, durability, safety and satisfaction. Johns-Manville knows how to make things out of asbestos —been doing it for 50 years.

Think that over and you'll agree that Johns-Manville *does* mean good brake lining.



**Police inspecting brakes.**  
The police in 130 American cities are not to get the brake-ceramics, asbestos, asbestos-free, can be your profit if you'll line their brakes with Johns-Manville Asbestos Brake Lining.

JOHNS-MANVILLE CORP.  
255 MADISON AVE. NEW YORK  
BRANCHES IN ALL  
LARGE CITIES THROUGHOUT  
CANADA JOHN'S MANVILLE  
LTD. TORONTO



To keep your shop busy,  
display Johns-Manville's asbestos-free  
brake linings, and many other  
parts. You'll find them in the  
shop, and you'll find them in the  
shop.



There's no going on this sign.  
The sign outside your shop tells the  
passing motorist that there is excep-  
tional brake service inside. Your  
shop is Johns-Manville's name.  
The sign is the sign. Two good  
reasons to be proud of an sign.





# “SWANK”

## ROSE

Easy Valve Action

### TIRE PUMP

—for a bigger profit!



YOU want to make the best profit you can on Tire Pumps —You can do it and give your customer the best pump made! A pump that will get a tire up in the quickest time with the least pumping. That's the Rose! With the five year guarantee! Ask your jobber today.

**Rose Hose for All Pumps**

PUT one of these new tire pump Hose Cartons on your counter and watch sales! Rose Pump Hose are heavy rubber with best connections. Fit any pump. Also leather Pump Washers. Ask your jobber.

THERE is an appearance and dressiness given a motor car by side awnings that appeals to the motorist. Add to this the cool driving comfort, without glare or eyestrain and you have the reason for their popularity. Show your customers Rose Awnings—how well they are made and how easy to put on or take off and the sale is made. Nothing to mar the car—just snap in place. Not a hole to bore or a bracket to install.

## Make A Note to Ask Your Jobber Salesman

It is easy to handle Rose Awnings—*first*, your jobber supplies you as needed; *second*, only eight sizes to fit all cars; *third*, no installation; *fourth*, the Rose gives you the largest dealer profit with popular retail prices. Ask your jobber for Rose Awnings now—and be ready for early sales.

# ROSE

Automobile Side

## AWNINGS

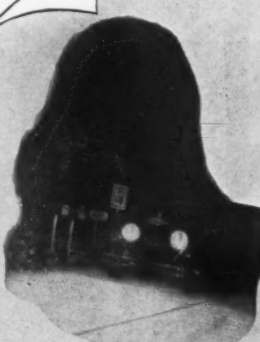
**FRANK ROSE MFG. CO.—HASTINGS, NEBR.**



# Again before 3,000,000 buyers of the "POST"

THE SATURDAY EVENING POST

## For your own Safety as well as the Public — Ilco-Ryan-Lites!



*These unusual Headlights Completely Floodlight the entire road—yet actually grow dimmer as they are approached*

ILCO-RYAN-LITES promote safety—your own as well as the public safety! While providing an abundant flood of road illumination, ample for all driving purposes, they project a widespread softly diffused beam that really helps, not hinders, approaching drivers.

This safety factor is achieved by the Ilco-Ryan-Lite combination of a shallow reflector, a long projecting, non-focusing bulb socket and a specially designed lens.

This combination makes possible a character of road illumination that it is impossible for you to secure with any other headlight.

With Ilco-Ryan-Lites the entire road is softly floodlighted for a distance of over two hundred feet ahead of your car. Road signs are easily read while passing at your usual speed. Trees, culverts, ditches, telegraph poles—all obstacles and obstructions—are clearly visible. There is no back glare or sharp shadows to tire your eyes. Even the densest fog is penetrated by this soft, floodlighting beam.

All this remarkable illumination is secured without dangerous glare. The Ilco-Ryan-Lite beam is projected from the upper half of the reflector and is always directed downward.

Only by driving behind this remarkable road illumination can you fully appreciate all the advantages of Ilco-Ryan-Lites. Your dealer will be pleased to show you these remarkable headlights and arrange a demonstration.

Ilco-Ryan-Lites are available for all cars in two sizes—11½ and 9¾ inches in diameter; two finishes, black and nickel, and all nickel and two styles, a plain and decorative plume design back.

Exclusive Manufacturing and Sales Rights for the U. S. Owned by  
INDIANA LAMP CORPORATION  
Connersville, Indiana  
Manufactured by  
THE STOVER SIGNAL ENGINEERING CO.  
Racine, Wisconsin

**ILCO-RYAN-LITE**  
-the Headlight that Floodlights the Road

Though an excellent example of the Ilco-Ryan-Lite headlight, it is not the only one. The Ilco-Ryan-Lite headlight is the only one of its kind. It is the only one that is so designed that it can be used on any car. It is the only one that is so designed that it can be used on any car. It is the only one that is so designed that it can be used on any car.

**\$22.50 to \$40.00 per pair**  
Slightly Higher When in Stock

**CONSISTENTLY,** throughout the year, motorists everywhere are being told of the advantages and safety features of the remarkable ILCO-RYAN-LITE—the Headlight that Floodlights the Road.

Have you availed yourself of the opportunity for profits which this new headlight presents? Dominant national advertising, such as reproduced here, window and store display material—sales helps of all kinds—are constantly building up a profitable prestige upon which you as a dealer can capitalize.

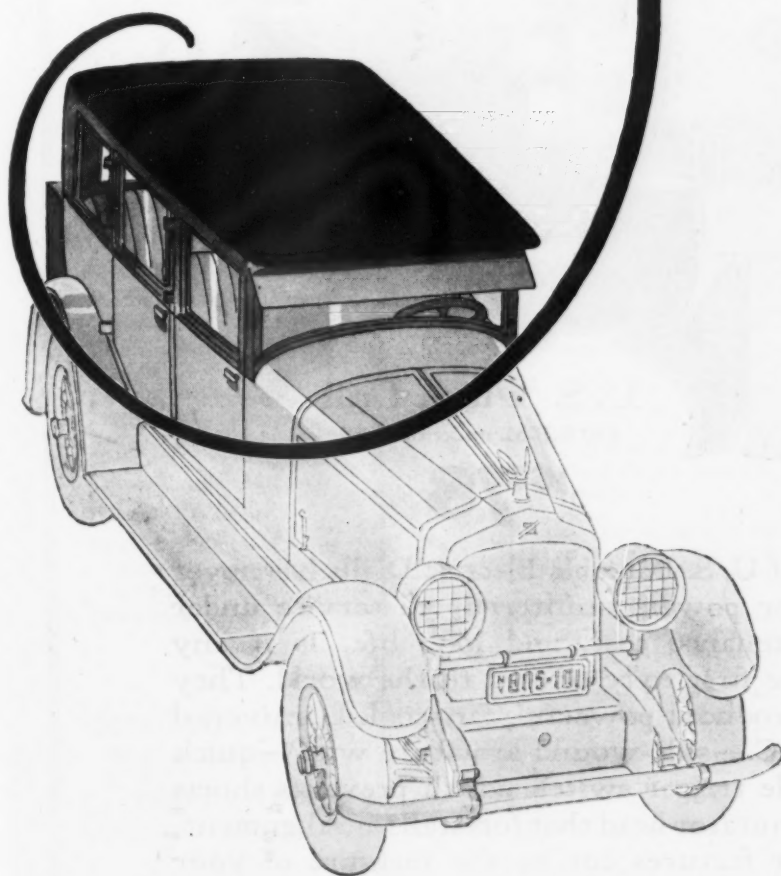
If you are not yet getting ILCO-RYAN-LITE business talk with your wholesaler today!

Exclusive Manufacturing and Sales Rights for the U. S. Owned by  
INDIANA LAMP CORPORATION  
Connersville, Indiana  
Manufactured by  
THE STOVER SIGNAL ENGINEERING CO.  
Racine, Wisconsin

Your name and address written across the bottom of this page and addressed to The Stover Signal Engineering Co., Racine, Wis., will bring you an interesting booklet which explains the technical and practical advantages of the Ilco-Ryan-Lite.



# Where the weather strikes hardest



use  
**DU PONT**  
**EVERBRIGHT**  
**PONTOP**  
for lasting satisfaction

A DECK of du Pont Everbright Pontop keeps on looking new—a source of satisfaction to the car owner.

Made of rubber—permanently waterproof—Everbright Pontop holds its lustrous finish through rain and sun alike.

It is flexible, quickly tailored—makes a stunning looking job—and one that keeps its good looks. Du Pont Everbright Pontop is a real sales help.

**E. I. DU PONT DE NEMOURS & CO., Inc.**  
FAIRFIELD, CONN.

Detroit Office: General Motors Building

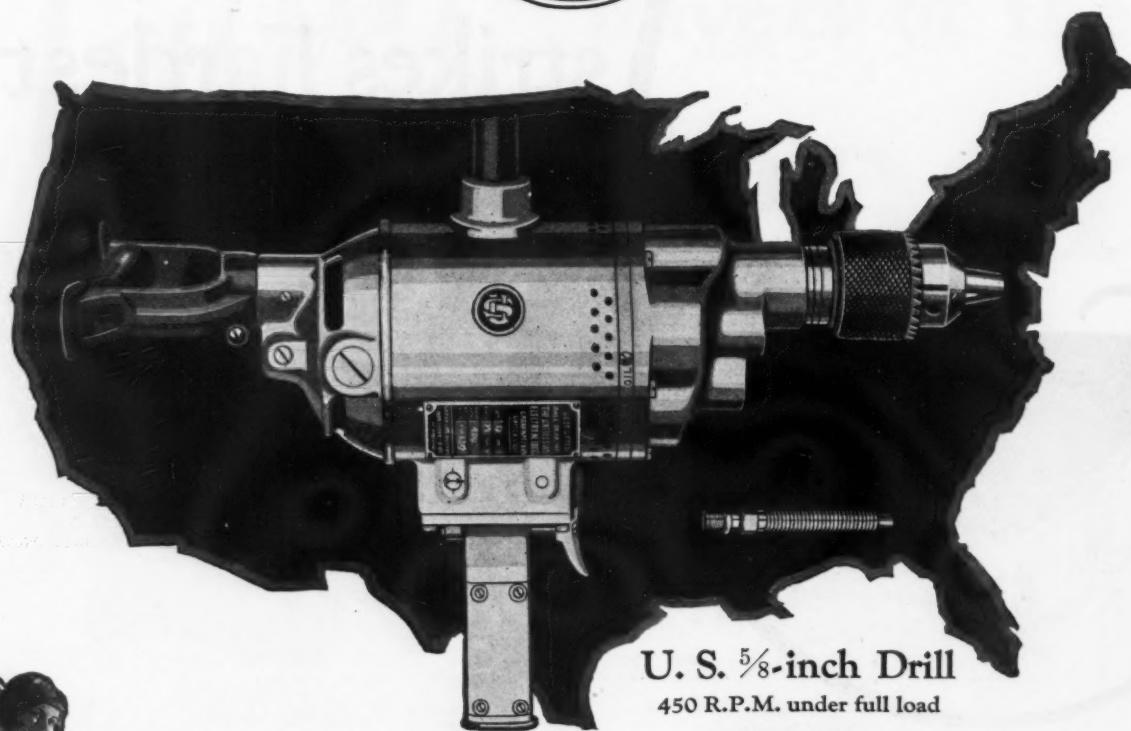
Canadian Manufacturer:

Canadian Fabrikoid Limited, New Toronto, Ontario

Why Do U. S. Drills Lead



the World in Performance?



U. S.  $\frac{5}{8}$ -inch Drill

450 R.P.M. under full load

**\$78**



*They Make  
Light Work  
of Heavy Jobs*

THE long record of U. S. Portable Electric Drills has never been matched for power, uninterrupted service under hard usage, low maintenance cost, and long life. Is it any wonder? They were the first to be offered to the world. They were the ones that introduced powerful, fan-cooled, universal motors for A. C. or D. C.—silk-wound armature wire—quick make, quick break 2-pole trigger switch which prevents shorts—1-piece frame and commutator head that forestalls misalignment. They have many other features cut to the measure of your needs, and form-fitted to your ways of working—3 heavy-duty SKF ball bearings—chrome nickel steel gears, hardened, running in grease, etc., etc. Yet every U. S. Drill is priced within the reach of even the smallest users.

*Ask your jobber for complete details  
—or write us today for Catalog H*



THE UNITED STATES ELECTRICAL TOOL COMPANY  
Oldest Builders of Electric Drills and Grinders in the World  
Cincinnati, Ohio, U. S. A.



**Portable Electric Drills  
Grinders—Polishers**

Export Sales Representatives—WESTINGHOUSE ELECTRIC INTERNATIONAL CO.—150 Broadway, New York, N.Y.

# Gerde Motor Company, Inc. chose ELCAR—WHY?

## *Shock-less Chassis Features*

Belflex Shackles (not rubber blocks)  
Cork Body Inserts  
Felt Padded Body  
Oversize Balloon Tires  
Motor Vibration Dampener  
Cushioned Motor Supports  
Lovejoy Hydraulic Shock Absorbers [8-82]  
Extra Long Springs  
Lower Center of Gravity  
Balanced Wheels  
Nachman Deep Davenport Type Upholstery Springs  
Extra Heavy Frame

**Standard  
Equipment  
Features [8-82]**  
*Included in the price of  
the car*  
**NOT EXTRAS!**

Balloon Bumper in Front  
Balloonette Bumpers in Rear  
Combination Stop, Tail and Backing-up Light  
Lovejoy Hydraulic Shock Absorbers  
Dash Gasoline Gauge  
Automatic Windshield Wiper  
Transmission Lock  
Rear Vision Mirror  
Heater in All Closed Models  
Motometer and Winged Radiator Cap  
Pump, Jack and Tools  
Fedco Theft Protection



WELL BUILT  
CAR

NICOLLET AVE. OFFICE

GERDE MOTOR CO., INC.

ELCAR  
DISTRIBUTORS

912 EAST LAKE STREET

3919-15 NICOLLET AVENUE

MINNEAPOLIS, MINN.

Elcar Motor Company,  
Elkhart,  
Indiana.

Gentlemen:

For years we handled the \_\_\_\_\_. We built a good business that supported two establishments, and normally would have been satisfied to continue indefinitely with the car we were handling, as it is an excellent automobile and much in demand.

But we watch the trend of the motor car industry closely, and we felt that a new type of car was needed. Since the advent of the popular-priced eight-in-line no outstanding development had taken place in the industry, and we believed one was needed.

The car we handled had nothing startling to announce for 1927, so we went to the Chicago Show hoping to find something there. We found it.

The ELCAR with the Shock-less Chassis was the most talked-about car at the Show. We studied it, rode in it, were told about discounts, factory cooperation, advertising assistance, future plans -- and we took on ELCAR. And we were right - sales since then have more than proved it.

Yours very truly,

Gerde Motor Company, Inc.

Per

E.A.C.  
FN

Pres. & Treas.

## Do As Gerde Did—Investigate!

Write now for the story we told Gerde about discounts, cooperation, advertising, etc. Check into ELCAR with the *Shock-less Chassis*, the foremost new development of the day.



# ELCAR



WITH THE

## *Shock-less Chassis*

ELCAR MOTOR COMPANY · ELKHART, INDIANA



# VITALIC

REG. U. S. PAT. OFFICE

## FLAT and ROUND FAN BELTS

# They're selling... and how!



"Tougher than  
Elephant Hide"



Accessory dealers, mechanics and garage men woke up to the fact only this year, that they had been missing a good bet. They discovered that no one had thought of selling fan belts. No one had realized a car should have a new one at least once a year. The owner came in for a new one when the old one dropped off.

But now! Try to bring a ragged old belt into a garage and take it out again!

And if the garage man knows his groceries, if he knows what's good for him and what's good for the car owner—the new belt will be a Vitalic.

Vitalics are worth selling and worth buying.

They are sold to the trade through jobbers exclusively.

### Continental Rubber Works, Erie, Pa.

CHAS. C. KERNER, 152 Chambers St., New York, Exclusive Foreign Representative

# WHY THE STORM 6 Blade Cutter Head DOES BETTER WORK

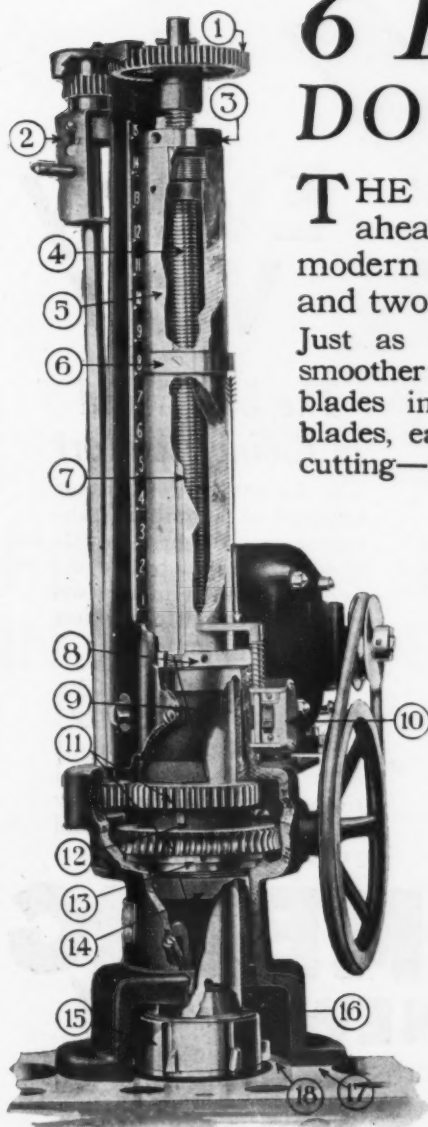
THE STORM, with its SIX blade cutter head is as far ahead of machines with a single cutting blade as the modern four and six cylinder motor surpasses old time one and two cylinder cars.

Just as multiple cylinders give a steadier, smoother flow of power, so do SIX cutting blades insure accurate cylinders. With SIX blades, each blade does only one-sixth of the cutting—the blades show less wear—make much finer cuts—do absolutely accurate work.

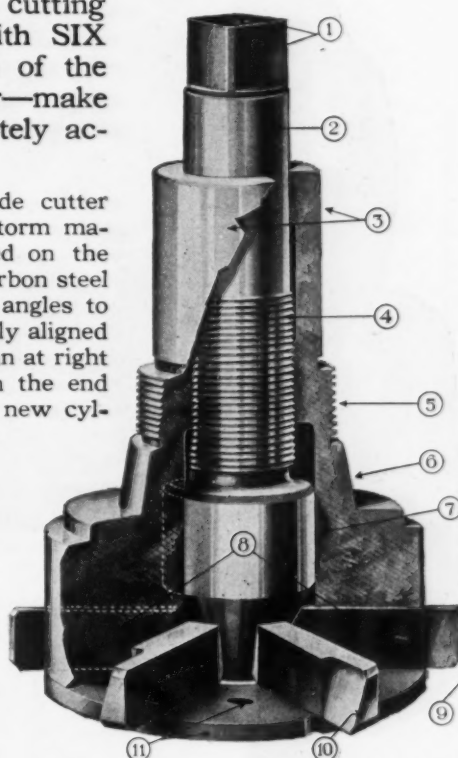
Remember, the patented SIX blade cutter head is just one feature of the Storm machine. After the Storm is clamped on the clean face of a block, the heavy carbon steel boring bar is at absolutely right angles to the crankshaft. This bar is specially aligned and ground—it can't be other than at right angles! When the cutter head on the end of the boring bar mills down, the new cylinder is not only perfectly round, it is absolutely square with the crankshaft. All this accuracy is built right into the Storm machine and is *not* dependent upon the operator.

The illustration at the left shows a sectional view of Model M Stormizing machine.

At the right is shown a sectional view of the patented Storm 6 blade cutter head.



- 1—Feed Screw.
- 2—Feed Shift for throwing Feed Pinion in and out of mesh.
- 3—Bronze feed nut threaded with eight square threads for feed screw.
- 4—Feed Screw turns slower than bar, providing fine, uniform feed.
- 5—Hollow, carbon steel boring bar hardened, ground and aligned.
- 6—Stop Collar set to depth of cylinder.
- 7—Keyway for main drive gear key.
- 8 and 13—Upper and Lower Collar for adjusting main bearings.
- 9 and 14—Upper and Lower Main Bearing, tapered adjustable type fitted to boring bar with no clearance.
- 10—Stop Switch.
- 11—Combination drive and feed gear floats between main bearings.
- 12—Key fits in the keyway of boring bar.
- 15—Storm Patented Multiple Cutter Head with six cutting blades set in opposed positions.
- 16—Tapered self-centering seat of cutter head fits like tapered seat in boring bar.
- 17—Base is machined after assembling, in positive square with boring bar.
- 18—These six beveled edges form centering cones.



- 1—Cutter Adjuster—The centers at both ends used for all finishing and checking operations of Cutter Head; also for regrinding blades.
- 2—Ground Pilot of Cutter Adjuster fitted with NO Clearance.
- 3—Cutter Head Pilot fitted to like ground pilot in Boring Bar. Pilot keeps Cutting Blades square with Boring Bar.
- 4—Threads for adjusting Cutter Adjuster up and down.
- 5—Threads hold Cutter Head in Boring Bar.
- 6—Tapered self-centering seat of Cutter Head is held against like tapered seat in Boring Bar.
- 7—Head of Cutter Adjuster fitted to bearing surface.
- 8—Cutting Blades set in opposed position.
- 9—This 25 degree bevel of blade does the cutting—the six beveled edges form a cone for centering.
- 10—One of the six spiraled edges that smooth the cylinder wall and determines size.
- 11—Face plate and hole for one of six clamp screws that clamp face plate.

For Catalog and Full Information, write

## STORM MANUFACTURING CO., Inc.

MANUFACTURERS OF  
RITEWAY CONNECTING ROD AND PISTON ALIGNER  
STORMIZING EQUIPMENT  
STORM HONES

406 (A) Sixth Avenue So.

MINNEAPOLIS, MINN.

# NEW

## In Every Way



### *The Last Word In Riding Comfort*

The Latest and Greatest triumph of Stromberg Laboratories. Designed, Developed and Proved by Stromberg Engineers after two years of experimentation and exhaustive tests.

### *New In Every Way Best In Every Way*

A Shock Absorber that never fails to provide ideal riding over any road. Try a set on your own car and you'll know why.

## STROMBERG NEW ANTI-SHOX

*For Durability, Performance and Dealer Profit*

### *Here Are the Reasons:*

Permit car springs to perform their full function.

Correct resistance regulated automatically for every road condition.

Do not grunt or squeak.

Not affected by changes in temperature.

Brake surface increases and de-

creases proportionate to spring action.

Return action of Anti-Shox Spring coordinates perfectly with car spring.

Sturdy construction. Best materials and workmanship and the Stromberg reputation behind them.

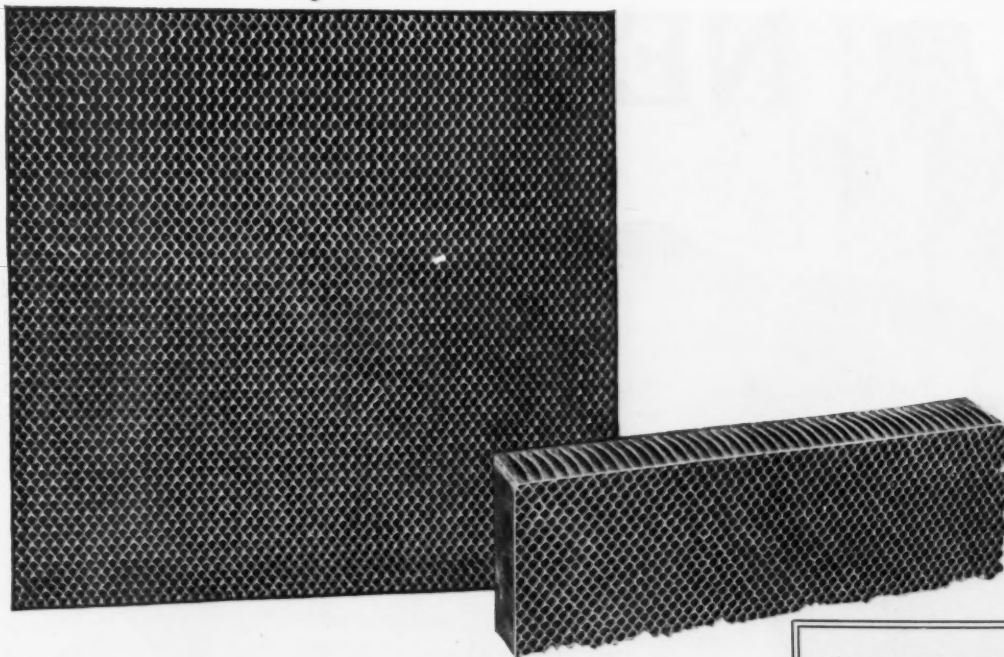
**Dealers:** Stromberg Anti-Shox make big profits for you as well as satisfied customers. They are advertised nationally and sales will be large. Provide Anti-Shox for your customers and don't let your competitors make the profit. Let us send you all the facts about our new discounts and our dealer's co-operative plan. Write today.

**STROMBERG MOTOR DEVICES COMPANY**

58-68 East 25th St., Chicago

Direct Factory Branches: 517 W. 57th Street, New York City 760 Commonwealth Avenue, Boston 84-86 Hancock Avenue W., Detroit  
1529 Laurel Avenue, Minneapolis 1809 McGee Street, Kansas City London, England, Chelsea, S. W. 10, Milman's Street and Cheyne Walk





## FIRST NEW IDEA IN RADIATOR CORES—in Years *Ends Hot Weather Radiator Troubles Once and for All*

For the first time a radiator core that is not 20 years old is offered to the trade.

The Standitall Radiator Core is entirely different from others. Due to the fact that the usual separators or "dummies" do not run the full depth of the core, the waterways provide a freer circulation and a wider distribution of the water—resulting in a radiator core that simply cannot be damaged either by boiling or by repeated freezings. Visitors at our factory can see a core which has been frozen and thawed out 32 times without the slightest damage. Standitall Radiators are built to last for the ENTIRE life of the car—even though it is 10 or more years.

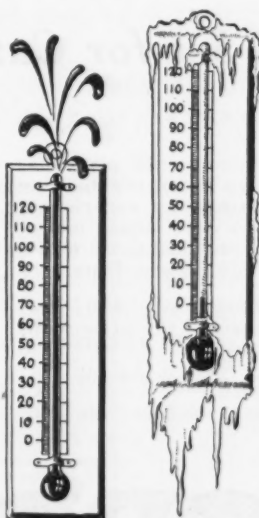
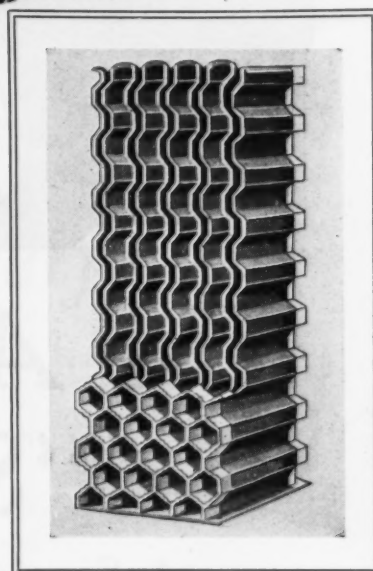
Instead of being tested at the usual air pressure of 4 pounds, Standitall Cores are tested under an air pressure of 20 pounds.

Consider the advantage of handling a replacement core that will be a virtual guarantee against radiator trouble all during the coming hot weather—and that will be just as free from freezing next winter. In fact, for many seasons to come.

Made for all cars.

If your jobber does not have our product he can get it for you, or write to us direct, mentioning your jobber's name. Descriptive literature on request.

**J. C. BLACK MFG. CO., Inc.**  
Factory & Executive Offices: Oil City, Pa.



**Damageproof**  
*from both*  
**BOILING**  
*and*  
**FREEZING**

# STANDITALL AUTO RADIATOR



# NEW in Screw Plates



only  
**\$29<sup>50</sup>**  
list

## The Alvord-Polk "SEVEN-HUNDRED"

—A Special Set for Car and Truck Threading

### Automotive men:

We believe we have designed a better screw plate for you than any now on the market. We forgot tradition in screw plates and went out and learned by experience what you wanted. We discovered you were buying many parts rarely used . . . and lacked others hard to do without. As a result the Alvord-Polk "700" Screw Plate.

Here is what you get in the Alvord-Polk "700" Set for only \$29.50 List. Compare parts and the price with any other sets.

$\frac{1}{2}$ "—28 SAE Round adj. Die. $\frac{1}{2}$ " OD.	$\frac{3}{8}$ "—24 SAE Round adj. Die. $\frac{1}{2}$ " OD.
$\frac{5}{8}$ "—24 SAE Round adj. Die. $\frac{1}{2}$ " OD.	$\frac{1}{2}$ "—20 SAE Round adj. Die. $\frac{1}{2}$ " OD.

$\frac{1}{2}$ "—20 SAE Round adj. Die. $\frac{1}{2}$ " OD.	$\frac{1}{4}$ " RH Round adj. Pipe Die $\frac{1}{2}$ " OD.
$\frac{1}{8}$ "—18 SAE Round adj. Die. $\frac{1}{4}$ " O. D.	$\frac{1}{4}$ " RH Pipe tap.
$\frac{5}{8}$ "—18 SAE Round adj. Die. $\frac{1}{2}$ " OD.	$\frac{1}{4}$ " RH Pipe tap.
1 each of the above sizes in SAE taper taps.	1 No. 1 Screw Extractor.
$\frac{1}{8}$ " RH Round adj. Pipe Die $\frac{1}{2}$ " OD.	1 No. 3 Screw Extractor.
	1 No. 5 Screw Extractor.
	1 No. 6 Adj. Tap & Reamer Wrench.
	1 No. 8 Die Stock.

Case Dimensions are 19" Long, 11 $\frac{1}{4}$ " Wide, 2" Deep.  
Weight 12 lbs.

With the above parts you can handle 90% of all car and truck threading. And remember, the price is only \$29.50. Look up the jobber handling Alvord-Polk Tools and see the "700" Set, or write for complete information. Alvord-Polk Tool Co., Millersburg, Pa.

# ALVORD - POLK

*Tools for Repair Shops*

# RUGGLES

IT'S A GOOD JOB



*Where speedy delivery  
is important!*

IN EVERY branch of commerce and industry, the call is for quick, dependable delivery.

Trucks must bowl along with busses and motor cars to keep abreast of traffic and keep up with the modern pace.

Chassis, springs, driving mechanism, all must be geared up to this pace which calls for speed and power.

In Ruggles Trucks and Busses, all of these essential elements have been balanced by combining the Ruggles designs and chassis construction with the powerful, smooth-running Lycoming Motors, fruit of eighteen years of specialization in the building of fine engines for the automotive industry.

LYCOMING MANUFACTURING COMPANY

Makers of Fine Fours, Sixes and Eights-in-Line

WILLIAMSPORT, PENNSYLVANIA

Export Department—44 Whitehall Street, New York City  
MEMBER OF MOTOR TRUCK INDUSTRIES, INC., OF AMERICA

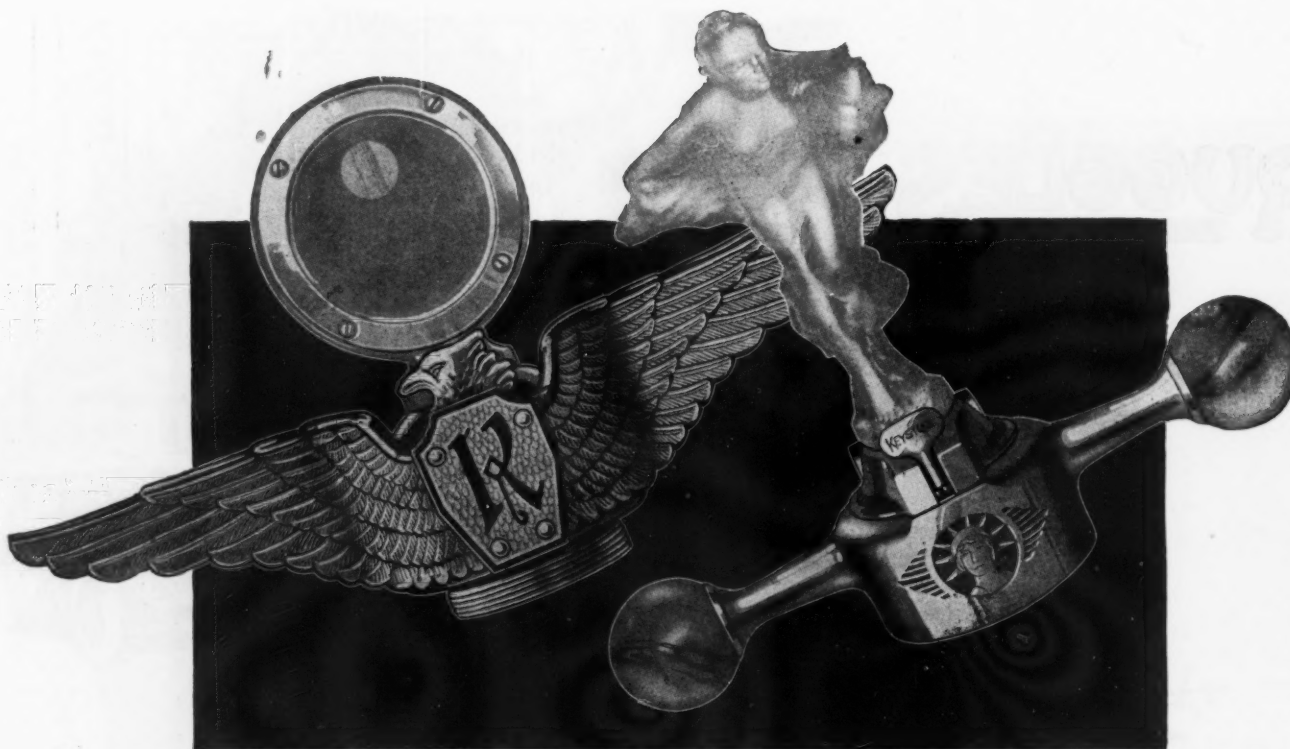
## LYCOMING

*Motors*

*Years Ahead in Automobile Motor Efficiency*







## SELL "KEYSTONE" PROTECTION FOR MOTOR METERS AND ORNAMENTS

THE Keystone Self-Locking Radiator Cap was originally devised for protection to motor meter, against theft and from being dropped or mislaid. The outstanding popularity—the five years of efficiency and service of Keystone utility, is evidence of the acceptance and demand for these time-proven protective features.

Keystone Caps lock automatically to radiator neck—no keys, chains or set screws being employed. Brass inserts, machine set at the factory, are non-corrosive and will not stick or "freeze" and provide an absolute water tight joint. No leaking, which is so prevalent in the cheaper cap constructions.

Keystone designs are unusually attractive and in combination with a motor meter or an ornament make a beautiful appearance on any car.

Dealers, in selling Keystone Self-Locking Radiator Caps, serve their customers efficiently and themselves profitably.

*Ask your jobber or write us*

**THE NORLIPP COMPANY**  
568 W. Congress St. Chicago

# KEYSTONE

**SELF-LOCKING  
RADIATOR CAPS**

Eagle - - \$6.00  
Eaglet - - \$4.00

*Including initial or emblem*

Senior - - \$4.50  
Junior - - \$3.50

*Bar type and metal balls*

Sr. DeLuxe - \$8.50  
Jr. DeLuxe - \$7.50

*Bar type with genuine Onyx balls*

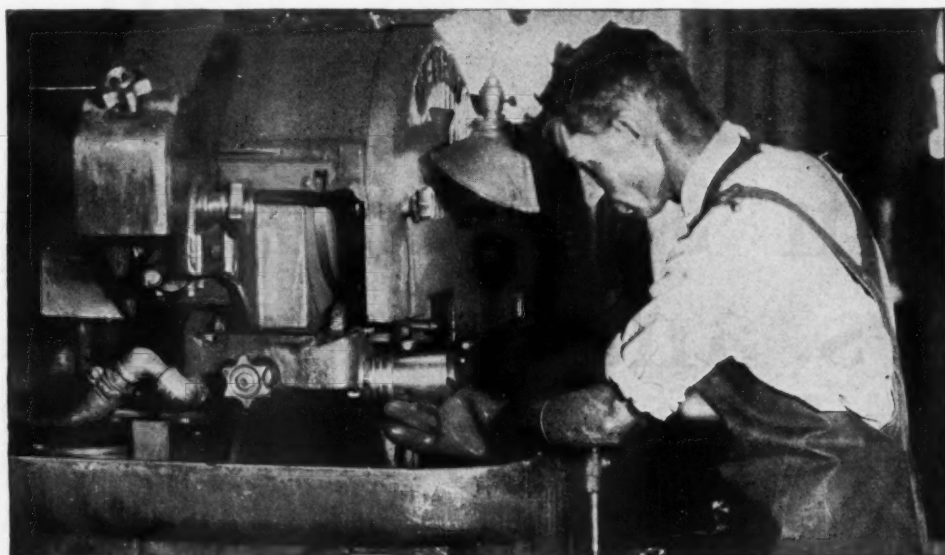


The convenience of the hinged cover, which tilts backward for radiator filling, is a Keystone feature well worth the price of the cap to any car owner.

The meter or ornament locks to hinged cover by means of a special slotted disc washer expanded into stem.

Ask your jobber for this counter demonstrating stand.

## CURTIS COMPRESSORS, HOISTS, CRANES, CAR WASH SYSTEMS, PORTABLE COMPRESSOR UNITS



## Accuracy like that which goes into a fine automobile

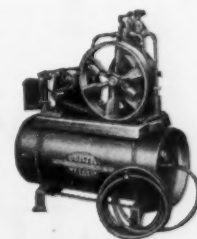
An air compressor is usually looked upon as "just a pump," not requiring the refinements that would be expected, for instance, in a fine automobile. Yet, the very nature of its work, and the long-time reliability expected from it, make accuracy doubly important.

In the illustration you see a piston for a Curtis compressor being ground to an accuracy finer than a human hair. If you should follow this piston through the shop, you would see it being fitted with meticulous care into a cylinder that had been bored and then honed to a standard of which any motor car manufacturer might well be proud.

In the selection of materials,

the casting, machining, assembling, testing, and all other operations you would find a degree of precision that would surprise you.

If you could watch all this in the great 17½-acre Curtis plant, as it is done by the Curtis organization with 73 years of manufacturing experience behind it (of which 30 years have been devoted to pneumatic engineering) you would know that the Curtis has *nothing in common* with the compressor ordinarily found in competition with it, save the low price at which it is sold!



### Curtis Style "V" Compressor

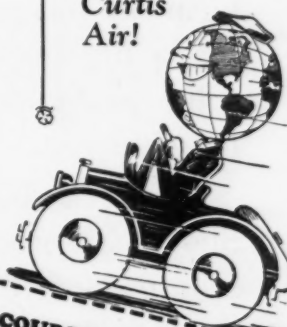
for garages, filling stations and industrial uses.

The world rides on Curtis air! If you should drive in for "free air" in Singapore or Valparaiso you would be quite as likely to find a Curtis Compressor at work as you are around the corner from where you live!

Curtis Compressors are used the world over for supplying air for tire inflation, car washing, materials handling, rock drilling and the operation of machines and tools of a thousand kinds in factory, field and work shop.

When you buy a Curtis Compressor you buy something more than fine raw materials put together with meticulous care—that something is experience! To be sure of reliability, every compressor you ever buy should bear the name "Curtis—St Louis."

### The World Rides on Curtis Air!



#### MAIL COUPON TODAY!

CURTIS Pneumatic Machinery Co.  
1957 Kienlen Ave., ST. LOUIS, MO.  
518-U Hudson Terminal, New York City.  
Please send me full information about Curtis Air Compressors.

Name.....

Address.....



B6

# CURTIS COMPRESSORS

CURTIS PNEUMATIC MACHINERY COMPANY, ST. LOUIS, U.S.A.

**“I have always had a very fine sale on Lincoln Shock Absorbers and am out to double my 1926 sales.”**

*Signed, J. D. Stall,  
Whittier, California*

Mr. J. D. Stall operates an electrical service station, specializing on battery, magneto, generator and starter service, yet he produces a very comfortable shock absorber profit as an *extra profit* for his business.

Shock Absorbers should be your best money-maker. If this is not true in your business you are losing a big portion of solid profit that belongs to you.

Lincoln Balloon Shock Absorbers are selling good, Lincoln dealers are making money. Lincoln customers are well satisfied.

There are thousands of Lincoln



Shock Absorber dealers like J. D. Stall who are making money with Lincoln Balloon Shock Absorbers. Take a tip from him and let us give you some information about the Lincoln dealer proposition. Address: E. C. Guthard, President,

Lincoln Products Company,  
2649-59 N. Kildare Ave., Chi-  
cago, Ill.

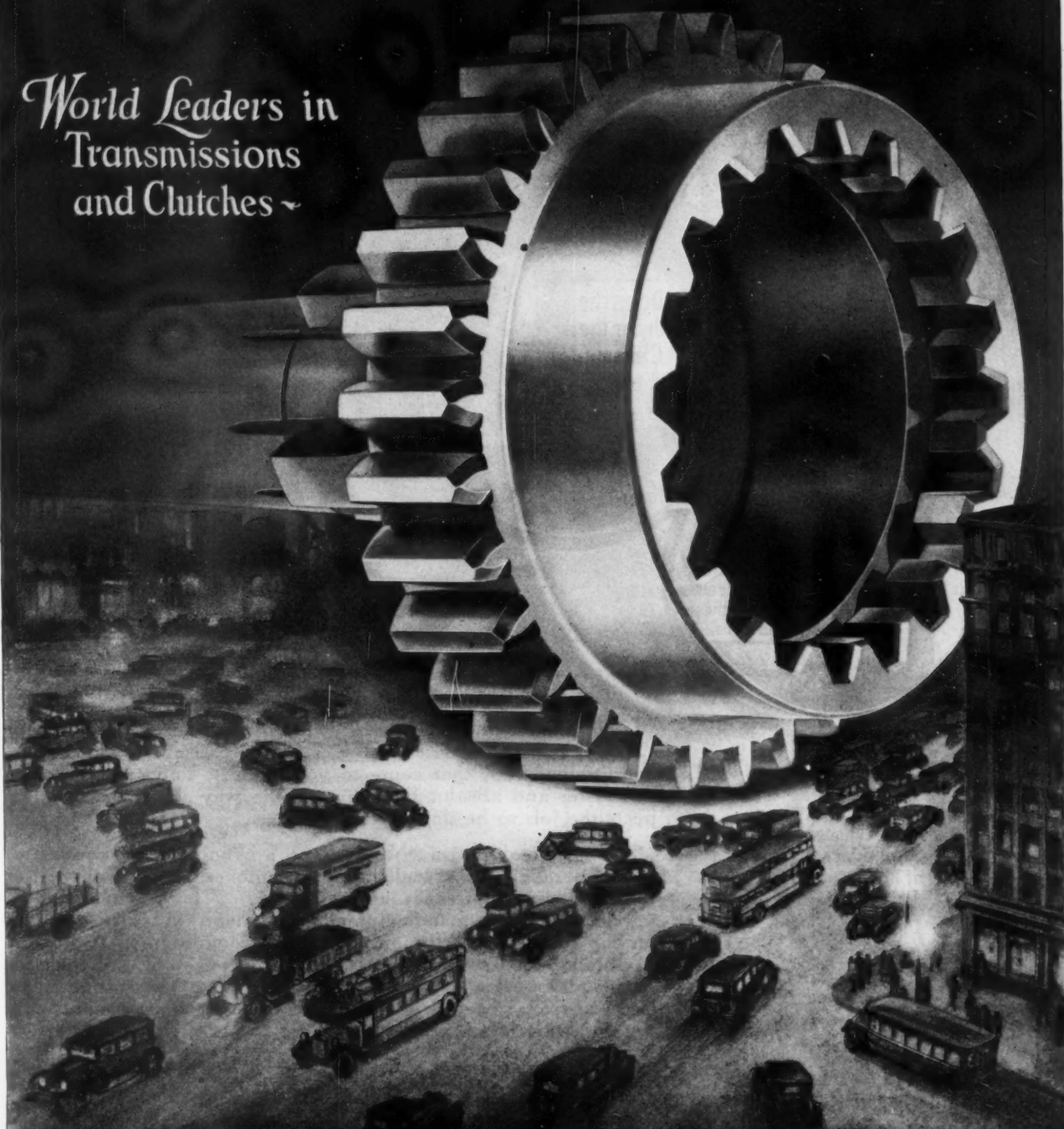
# **LINCOLN**

## **Balloon Shock Absorbers**



# BROWN-LIPE

*World Leaders in  
Transmissions  
and Clutches*



TRADE  MARK

# GEAR COMPANY

# Where else can you get *So Much Hone* for so little Money?



Does the  
Job in the  
Chassis

Solid Set  
and Spring  
Tension in  
one Hone.  
Pressure may  
be Changed Instantly  
from one to the other  
by means of these  
Knurled Nuts.



Impossible to  
Finish Cylinder  
Tapered or out  
of Round.



Fastest  
Hone Made

Wider Range  
Less Investment

Approved by Leading  
Car Manufacturers

THE Hall Hone offers you your one best buy in the Honing tool. With it you can take care of 90 % of the cylinder reconditioning jobs that come to your shop. You can turn them out faster and absolutely accurate—the way your customer expects the job to be done.

It's absolutely impossible to finish a cylinder out of round or out of parallel with a Hall Hone. Removes the oval as well as the taper speedily, easily and positively. That's why many of the leading auto manufacturers recommend the Hall to their service stations. It's the only cylinder reconditioning tool made combining solid set and spring tension in one tool; solid set for sizing and spring tension for fast cutting. Pressure can be changed from spring to solid or solid to spring in an instant without removing Hone from the cylinder or Drill from the Hone.

## Ask Your Jobber

—for the Hall Hone. Why pay more for less? If he can't supply you, write direct for literature, giving your Jobber's name.

**The Hall Manufacturing Company**  
1610 Woodland Ave., Toledo, Ohio, U. S. A.

# HALL Cylinder HONE



# In NEW YORK—and EVERYWHERE—the PAIGE franchise is Making Money for progressive dealers!

POSTAL TELEGRAPH - COMMERCIAL CABLES			
RECEIVED AT	TELEGRAMS	CABLEGRAMS	DELIVERY NO.
Signal after the number of message "Direct" indicates (Day Letter) "N.Y." (Night Letter) or "WASH." (Telegram)	TO ALL AMERICA	TO ALL THE WORLD	STANDARD TIME INDICATED ON THIS MESSAGE
<p>NA740 112 WL 3 EXTRA CP NEWYORK NY 1</p> <p>C B GAUNT SALES MGR PAIGE DETROIT MTR CAR CO DETROIT MICH SHIP IMMEDIATELY VIA LEHIGH VALLEY RAILROAD STOP SIXTY FOUR EIGHT EIGHTY FIVES STOP TEN SEVEN SEDANS FORTY FOUR FIVE SEDANS EIGHT CABRIOLETS ONE COUPE AND ONE LIMOUSINE STOP FIFTY EIGHT SIX SEVENTY FIVES STOP FIVE SEVEN SEDANS FORTY FIVE FIVE SEDANS FIVE CABRIOLETS AND THREE COUPES STOP ONE HUNDRED AND FIFTY EIGHT SIX SIXTY FIVES STOP EIGHT BROUGHAMS AND ONE HUNDRED AND FIFTY SEDANS STOP TWO HUNDRED AND TWENTY SIX FORTYFIVES STOP TWENTY FIVE BROUGHAMS ONE HUNDRED AND SEVENTY FIVE SEDANS FIVE CABRIOLETS AND FIFTEEN COUPES STOP DEMAND INCREASING RAPIDLY STOP IMMEDIATE SHIP- MENT IS NECESSARY FOR THE PROTECTION OF DEALER ORDERS AND OUR OWN STOP CONFIRM BY WIRE PAIGE DETROIT CO OF NY E W DALLEY.</p>			

Here is a bona fide order for 500 Paige cars listing over three-quarters of a million dollars. It speaks for itself. It tells what the New York dealers are doing. Are you sharing in the financial benefits of Paige's greatest selling proposition?

## Get the FACTS:

If you're making all the money you're legitimately entitled to make, then you're not interested in our proposition. But if there's an honest doubt in your mind about your future business prospects—get the facts, the complete story, about the money-making opportunities of the Paige franchise and study them. You're in business to make money—so find out *now* where and how you can make the most money. Mail the coupon *now*—while the matter is on your mind.

NEW YORKERS are the most critical motor car buyers in the world. Every car is represented along Broadway's famous motor row—and to win public preference in such competition a car must be outstanding.

Paige cars have captured New York because of their beauty—their unquestioned style leadership—their 18-year-old reputation for complete dependableness—their high dollar-for-dollar values.

Paige cars appeal to the widest and most profitable price fields in the industry—selling at the factory from \$1095 to \$2795. Paige cars are built on four separate chassis in both "Sixes" and "Eights". And the buyer has 20 charming body types and color combinations from which to select!

Is it any wonder Paige dealers are prospering this year, not alone in New York, but everywhere? They have enough cars to satisfy every worthwhile purse—they have at their command one of the fairest and most liberal time-payment plans in the industry—they have back of them at all times an extremely vigorous national and local advertising program—they get the maximum of interested cooperation from the factory at all times.

Men—here's a franchise. It will cost you nothing to get complete information, and you'll be under no obligation whatever. Simply mail the coupon and we'll send you the complete story.

PAIGE-DETROIT MOTOR CAR CO.  
Detroit, Michigan

Gentlemen:—

Without obligation, you may send me information about the Paige franchise.

Name \_\_\_\_\_

Address \_\_\_\_\_

(907)



# Save \$1 to \$3 on every Armature You Buy!



**W**HY buy a new core with every new armature? Armature cores are tough! Burn out an armature any number of times and the core is as good as new.

Thousands of repairmen all over America know this. These men are buying over 500 Fredericks Rewinds a day. Getting armatures guaranteed the same as *new armatures*.

At a far lower price! Convinced by experience that what you are reading here about Fredericks Rewinds is fact.

You can save the price of the cores on the armatures you buy, but be safe. For while an armature properly rewound is equally as good as a new armature, it is no easier to rewind an armature properly than to build a good new armature.

A Fredericks Rewind requires more than fifty operations. Machinery designed and patented by us speeds the work. As each operation is completed careful tests eliminate all chance of failure. The men at work are skilled armature men. Note that just as

in new armatures, both ends of a Fredericks Rewind are insulated—Plus value!

Because of this quality, more Fredericks Rewinds are sold than any other make. Volume production permits the low Fredericks prices.

Ship the next burned-out armature to Fredericks. The same day it is received, a Fredericks Rewind will be mailed to you. The convenient coupon brings complete details and prices. Send it now.

## New Low Prices

Rewinding or exchanging any two-unit type of automobile generator or starter armature

**\$2.50**

Any type of Ford armature

**\$1.50**

(Special prices on Ford Armatures in quantities)

**FREDERICKS**  
*Rewinds*

## H. M. FREDERICKS COMPANY

Lock Haven, Pa.

Gentlemen:

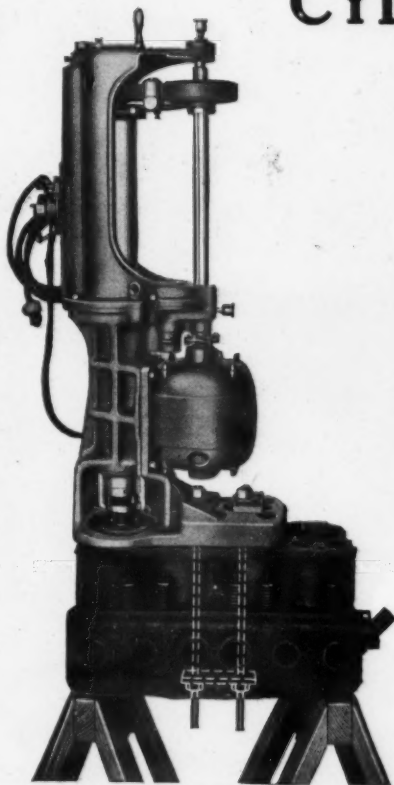
Without obligation, send me the Fredericks booklet containing a complete price list.

Name.....

Address.....

Company.....

# GET THE FACTS ABOUT OUR LATEST MODEL "C" **Simplicity** PORTABLE CYLINDER GRINDER



**Simplicity  
Reborer and Grinder**

## The Complete Simplicity Line

Model "C" Reborer and  
Grinder,  
Piston Grinder for Lathe At-  
tachment,  
Valve Face Grinder,  
Re-Seating Cutters and Pilots,  
Con-Rod Aligner,  
Bench Grinder,  
Motor Check,  
Brake Tester,  
Micrometers and Gauges.

## The **Simplicity** Piston Grinder for Lathe Attachment

The Simplicity Piston Grinder for Lathe Attachment can be easily attached to any standard lathe from 9 inches to 20 inches. A guaranteed precision machine. Price within reach of all.

Write for Catalog "D"

## Simplicity Manufacturing Co.

110 Spring St., Port Washington, Wis.

**SIMPLICITY MACHINES ARE SOLD ON EASY MONTHLY PAYMENTS**

About five years ago the first Simplicity Cylinder Grinder was built. Today there are thousands of Simplicity's in successful operation. The Simplicity is a universal machine and works automatically. It grinds cylinders straight and round and at right angles to the crank shaft. That means satisfied customers and repeat business. You cannot appreciate the "Simplicity" until you have seen it work, therefore, let us give you a demonstration in your own shop. There is no obligation on your part. Drop us a line the next time you have a block to regrind!



### PENNIMAN & RICHARDS

*Automobile Supplies Motor Parts*  
493 South Market Street,  
San Jose, California

December, 1926.

Simplicity Manufacturing Co.,  
Port Washington, Wis.

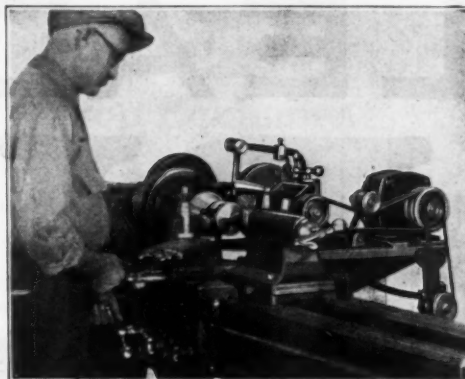
Gentlemen:—

A few days ago we had a picture taken of our Simplicity Cylinder Grinder and we are sending you one of these pictures as you are undoubtedly interested in receiving it.

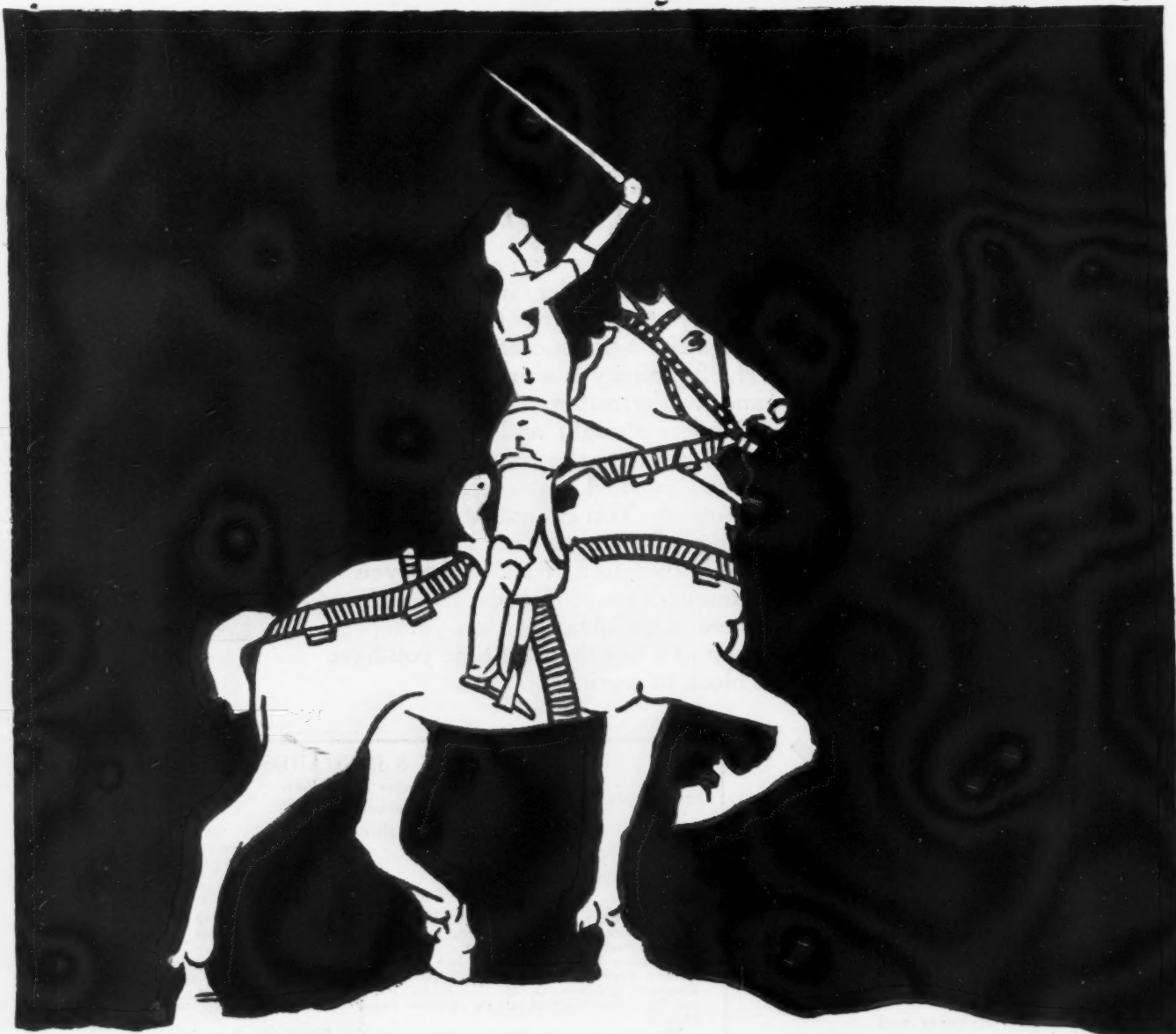
We have had our machine one year and during that time we have re-ground about 185 blocks of all kinds. These include Dodge, Chevrolet, Stephens, Hudson, G. M. C. Trucks, Reo Speed Wagon, Fords, Fordson and Sampson Tractors, single cylinder Franklins and a few small stationary motors.

We will be very glad to recommend the Simplicity most highly to any one interested in such work and can only speak of our machine with enthusiasm. It has been a good revenue producer.

Very truly yours,  
PENNIMAN AND RICHARDS.



Simplicity Piston Grinder



# OUTSTANDING LEADERSHIP DUCO

*There is only ONE Duco—DUPONT Duco*





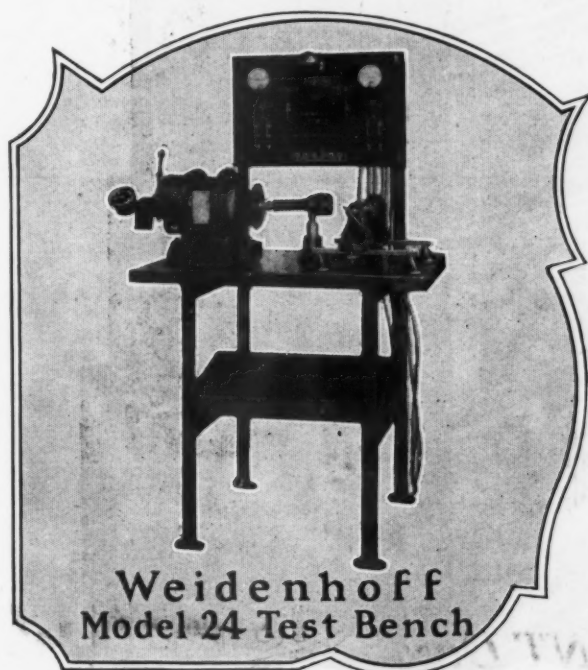
# Weidenhoff<sup>®</sup> In the Shops of the Leaders!

**Impressive  
List of  
Users—**

The following nationally known successful firms are using Weidenhoff Test Benches, Constant Potential or other items of Weidenhoff equipment in one or more of their branches or main plants:

United Motors Service, Inc.	The Young Men's Christian Association (Many Educational Departments).
Standard Oil Co., New York City, Indianapolis, Detroit.	Philco Storage Battery Co., Philadelphia, Pa.
Delco-Remy Corp, Dayton, O.	Willard Storage Battery Co., Cleveland, O.
Mack-International Motor Truck Corp.	American Railway Express.
North East Service, Inc.	Illinois Bell Telephone Co.
Rolls-Royce of America, Inc., Springfield, Mass.	Fifth Ave. Coach Co., New York City.
Packard Motor Car Co., Detroit.	Yellow Cab Co., Chicago.
Hertz Drivurself Stations, Inc., (Mass.)	National Carbon Co.
Chrysler Corp., Detroit, Mich.	Twin City Rapid Transit Co., Minneapolis and St. Paul Busses.
Dodge Bros., Inc., Detroit.	Northland Transportation Co., Minneapolis.
United States Government.	Yellow Taxi Corporation, New York City.
75 Technical Schools and State Colleges.	

And thousands of Battery and Electrical Service Stations, Car Dealer Service Stations, etc., throughout the country.



## The Weidenhoff Line

Test benches for Ignition, Starting and Lighting Units. Constant Potential Charging Equipment. Lathes for Armature Work. Commutator Mica Undercutters. Armature Testers. Bearing and Gear Pullers. Battery Discharge Sets. Cell Testers. Magnetizers.

Easy monthly payments

## WEIDENHOFF Shop Equipment

for Battery and Electrical Service

4358 Roosevelt Road

Chicago, Ill.

Jos. Weidenhoff,  
4358 Roosevelt Road, Chicago, Ill.  
We are interested in your:

(Write name of article of equipment here)

SEND FOLDER ☐

HAVE JOBBER CALL ☐

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_

STATE \_\_\_\_\_

M.A. 5.5.27

# BUNTING

## PHOSPHOR BRONZE

# BUSHING BEARINGS

PATENTED

The quality of the parts you use in your service and replacement work is just as important as the quality of the workmanship. Your shop needs the quality and world-wide reputation of Bunting Bushing Bearings just as much as it needs competent men.

Wherever you are, there is a jobber near you with a complete stock of Bunting Bushing Bearings for all service replacements.

THE BUNTING BRASS & BRONZE CO.  
TOLEDO, OHIO

#### BRANCHES AND WAREHOUSES AT

NEW YORK  
276 Lafayette St.  
Canal 1374

PHILADELPHIA  
1330 Arch St.  
Spruce 5296

BOSTON  
36 Oliver St.  
Hancock 0154

SAN FRANCISCO  
198 Second St.  
Douglas 6245

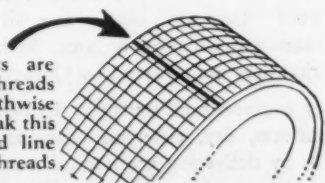
CHICAGO  
2015 S. Michigan Ave.  
Calumet 6850-6851



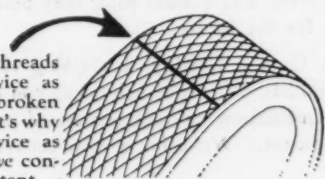
**W**HEN a customer drives up with a hot engine, *lift the hood* of his car. Four times out of five you'll find the trouble is caused by a neglected fan belt that's become worn and is *slipping*. By putting on a new belt you do your customer a real service. That builds good will—and good will is what builds profits.

**It's Gates Patents  
That Make  
Vulco Belts  
Hard to Break**

Ordinary fan belts are plain weave. The threads in the belt run lengthwise and across. To break this belt on the marked line only the lengthwise threads need be broken.



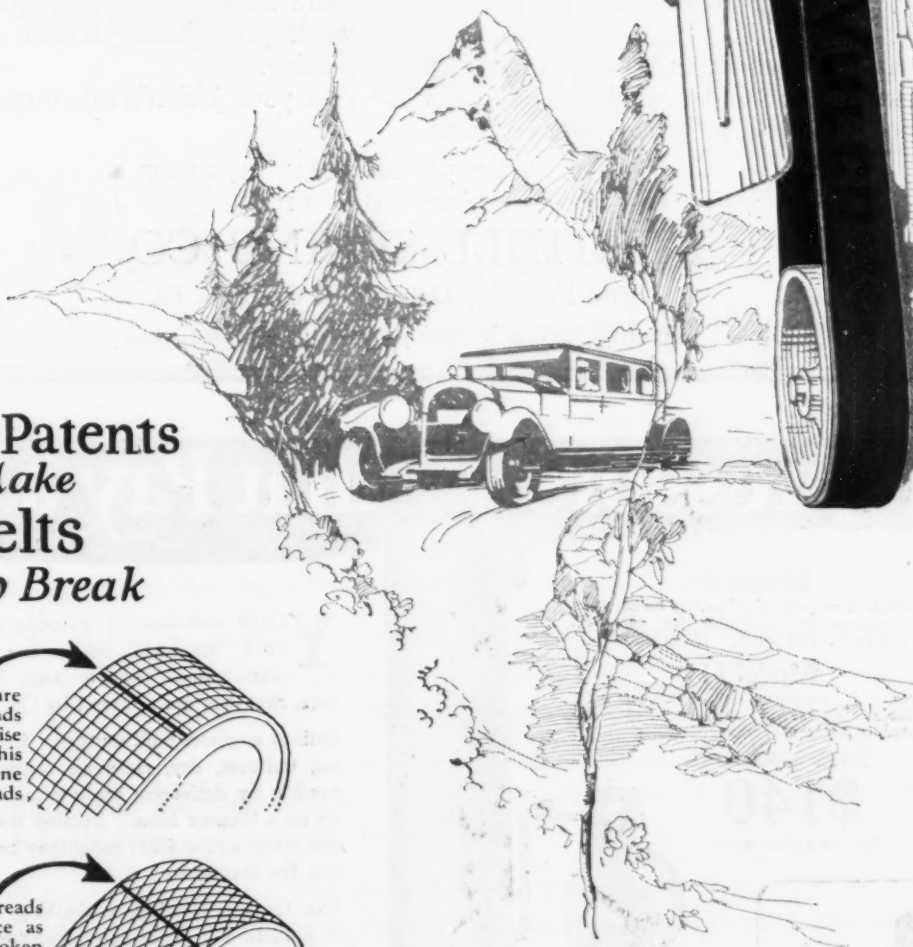
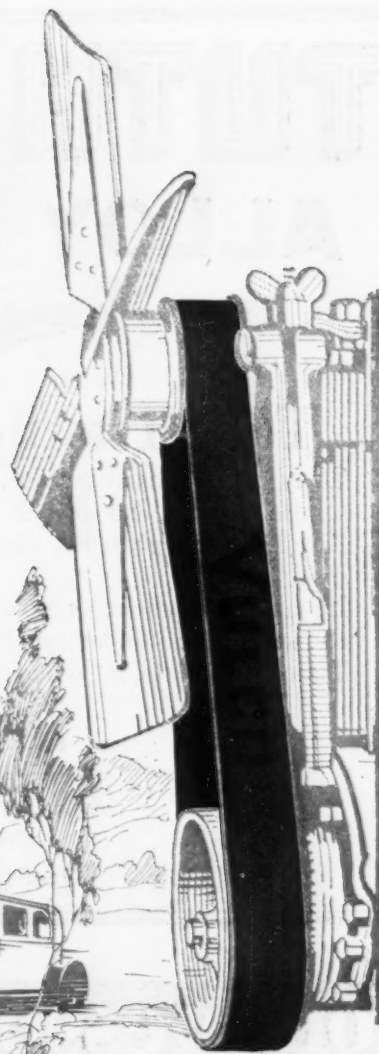
In Gates Vulco Belts threads run diagonally. Twice as many threads must be broken to break this belt—that's why it resists breaking twice as long. This bias weave construction is a Gates patent.



**"The Standardized Fan Belt"**

**GATES VULCO BELTS**

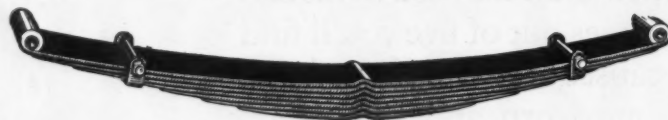
"Made by The World's Largest Manufacturers of Fan Belts"





# TUTHILL TITANIC

## ALLOY STEEL SPRINGS



### Talk Titanics for Truck, Bus, and Cab

They all see hard service. They all go where many a car owner will not drive his car—through fields, ruts, ditches, and mud.

It's asking a whole lot of a set of springs to stand up under such abuse. But Titanics will do it, when others cannot.

The staunch and sturdy hump center is made for just that kind of going. And the extra amount of strength for heavy duty work gives better service in day-by-day driving.

Ask your jobber's salesman.

[ For the "price" job, sell Tuthill "Equipment" ]  
[ Springs — unusual quality at a low price. ]

### TUTHILL SPRING CO.

760 Polk St., Dept. 579, Chicago, Ill.

*Quality Spring Makers for Nearly Half a Century*

# Compressors that Pay a Profit

### Model B

*At right.* A popular single-stage outfit, complete less power. Suitable for use with gas engine or line shaft. Many sizes.

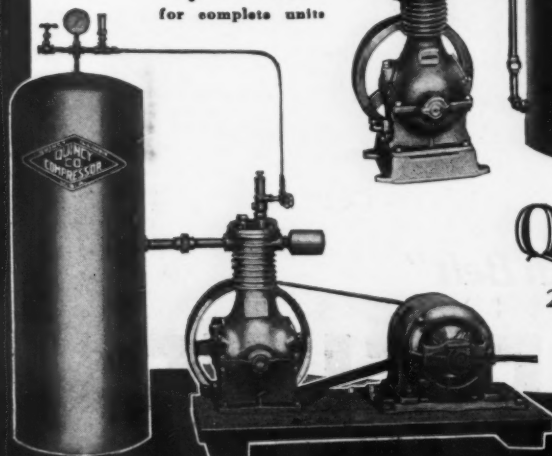
### Model H

*Below.* A complete motor driven unit, available in several sizes. Especially adapted to paint spraying.

Prices as low as

## \$140

for complete units



**Y**OUR auto laundry, painting department, even your "free air" outlets are all intended to earn a profit, now or later. Make sure, therefore, that they are powered by Quincy Compressors.

Quincy engineer-built units pay dividends by supplying uniform, dry, clean air when and where you need it; by delivering economical, trouble-free service on a lifetime basis. Because they help you turn out better and quicker jobs, they build your reputation for the future.

The Quincy Catalog, containing specifications of all models, will prove helpful to you when you plan the installation or replacement of any compressor equipment. Write for a copy today.

## QUINCY COMPRESSOR CO.

219 Maine Street



Quincy, Ill.

K585



## Make the most of the time that's left

ONLY a little time remains to make the most of the biggest merchandising campaign ever put behind a tube patch—the free Las-Stik Casing Plaster with each can of Las-Stik Tube Patch.

It's a campaign that not alone increases your sale of Patch because it is a bargain offer, but it also develops that equally profitable market for Las-Stik Casing Plasters.

This Las-Stik Casing Plaster, announced for the first time this year, not alone strengthens the casing at the break, but also plugs up the hole, binds the cords of the tire together again, and makes a perfect, permanent repair.

Las-Stik Casing Plasters are made in five sizes for all manner of breaks and blow-outs. Until June 15th, the close of the campaign, a dozen No. 1 Size Plasters will be packed with each dozen of Las-Stik Tube Patch.

When you sell a can of Las-Stik you give the Casing Plaster free—a 75c value for 50c. If you have not done so already, ask your jobber about this plan immediately. Remember, it ends June 15th.

LAS-STIK PATCH MFG. CO., HAMILTON, OHIO

PATCHES **Las-Stik** PLASTERS  
TIRE REPAIRS



## This Permanent Steel Shelving saves space and costs no more than wood

**T**HE space-saving construction of GF Allsteel Shelving increases storage capacity from 10 to 20 percent over old fashioned wood shelving.

GF Allsteel Shelving does not depreciate. Whether you use it in one, or a thousand places, the same rugged strength of GF construction endures. The rigid steel shelves are bolted to a heavy steel framework, never sag, never totter. The baked-on olive enamel never chips or cracks.

There simply isn't any reason for building wooden shelving when you get all these advantages in GF Allsteel Shelving, and the cost is no more. Mail the coupon for booklet "Saving with Shelving."

**THE GENERAL FIREPROOFING COMPANY**

Youngstown, Ohio; Canadian Plant: Toronto, Ont.

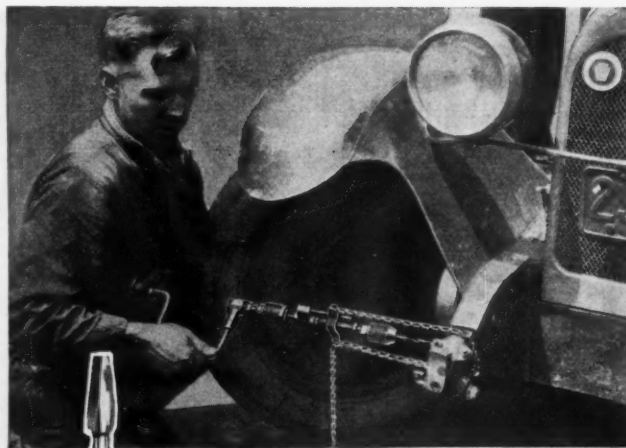
Branches and dealers in all principal cities

*The GF Allsteel Line: Safes • Filing Cabinets • Sectional Cases • Desks • Tables • Shelving • Transfer Cases • Storage Cabinets • Document Files • Supplies*

**Inventories are easier with**

# GF Allsteel SHELVING

Attach this coupon to your firm letterhead  
THE GENERAL FIREPROOFING CO., Youngstown, Ohio [M.A.]  
Please send me without obligation a copy of your book "Saving with Shelving."  
Name .....  
Firm .....  
Street No. ....  
City ..... State .....



Drilling hole in chassis for installation of bumper, with "Yankee" Automatic Chain Drill No. 1500 in combination with "Yankee" Ratchet Brace No. 2100.



## This way— Makes money for you Saves money for your Customers

Because this handy "Yankee" Chain Drill does jobs like this both rapidly and conveniently.

No bother about hand feeding. The "Yankee" Automatic Friction and Ratchet Feed do the job. All it is necessary to do is to turn the brace.

Friction Feed runs drill down to work. Then Ratchet Feed guides drill through cut with just the right pressure. Saves drill points.

### "YANKEE" Chain Drill All the skill is in the drill

No. 1500—3-jaw chuck, holds round shank drills only,  $\frac{1}{8}$  inch up to  $\frac{1}{2}$  inch. Extreme length  $9\frac{3}{4}$  inches. Weight,  $3\frac{3}{4}$  pounds.

No. 500—2-jaw chuck, holds square shank drills up to  $\frac{1}{2}$  inch. Length,  $10\frac{3}{4}$  inches. Weight,  $3\frac{1}{2}$  pounds.

### Some Other "YANKEE" Tools

Brake Lining Cutter Ratchet Screw drivers  
Ratchet Breast and Hand Drills Ratchet Tap Wrenches  
Automatic Feed Bench Drills Vises, Removable Base

**Dealers Everywhere Sell "Yankee" Tools**

"Yankee" on the tool you buy means the utmost in quality, efficiency and durability.

**Write for Free "Yankee" Tool Book**  
This interesting little book is for all lovers of fine tools. It tells just what you want to know about all the famous "Yankee" Tools for making work easier and quicker.

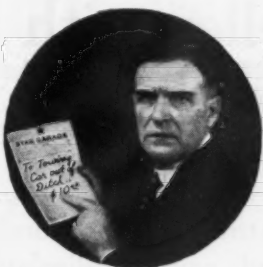
NORTH BROS. MFG. CO.  
Philadelphia, U. S. A.



# "YANKEE" TOOLS

*Make Better mechanics*





"I could buy an Autowline at half the cost!"



"Oh, if we only had an Autowline!"



"Out she comes with good old Autowline!"



"A life preserver for every motorist!"

## Push the ORIGINAL Wire Rope Towline!

Remember—and tell your trade to remember—that when a towline is needed, it wants to be an absolutely *dependable* one. Keep in mind that **BASLINE AUTOWLINE** is made of genuine Yellow Strand Wire Rope, famous for many years—that it has a reputation for quality, strength and dependability attained by no other towline.

### Pays You a Good Profit

Jobbers and Dealers, send for our current price list and you'll see that you can meet the competition of practically any other honest towline on the market—and make some real money doing it!

**BRODERICK & BASCOM ROPE CO., St. Louis**

Eastern Office and Warehouse, 68-70-72 Washington St., New York City

JR339

# S · T · A · T · E

Pay Us Less—Make More for Yourself  
on New and Used

GEARS MOTORS AXLES TOPS TUBES BODIES  
SHAFTS TRANSMISSIONS RADIATORS TIRES RIMS IGNITION

## AUTO PARTS

### New and Used Balloon

#### Tires and Tubes

#### Timken Rear Axles

For all makes of trucks and touring cars

#### Bosch Magneto

DU-4—\$12.50 DU-6—\$10  
Prices on others on request

### Accessories

New and Used

#### A Special Buick Dept.

Complete Stock up to 1927

New GRAY & DAVIS

Standard S.A.E. Generator

\$9.95. Fits Essex "6", Paige,

Continental Motors and many other popular makes

### MOTORS

Packard—6 Cyl.

Jordan—St. 8

Oakland—25

Oldsmobile—25

Cont.—J—4 Truck

Stutz—Dem. Hd. Motor

Studebaker—Big 6—26

Ford—Motor—1926

Rickenbacker—6—1924

25% deposit required on all orders

# CORPORATION

"Service and Quality"

2011-13-15 South State Street, Chicago, Illinois

Now Is the Time  
to Push Sales on  
**DUS-PRUF**  
METAL TRUNKS  
for Automobiles



Mr. Car Dealer: — Just install a DUS-PRUF All Metal Trunk on a car and see how easy it will be to sell it.

This is the time of least sales resistance, of greatest volume and most exacting demand.

Tourists, planning to start, or starting, need trunks. Their requirements are best fulfilled by DUS-PRUF Metal Trunks. They are easiest to sell.

What are you doing about this Spring business? Is your stock ready to make profits for you?

DUS-PRUF Automobile Trunks are all-steel. They will not rattle, rumble or let in dirt. They are protected by Patented special features, and a money-back satisfaction guarantee.

Provided in all styles and sizes, they make it possible to equip practically any car of well-known production on demand.

Dealers who handle DUS-PRUF Trunks find that these things pay—and the best season of the year is here.

Write today for full information  
by return mail.

**Dus-Pruf Metal Trunk Co.**  
414 W. Jefferson Ave., Detroit, Mich.

**A Big Seller with  
Good Profits**



No. 100

Attractively decorated counter display boxes containing ten clamps of ten different sizes help you sell

**IDEAL HOSE  
CLAMPS**

They are used everywhere

Order through your Jobber or direct  
from us

**IDEAL CLAMP MFG. CO. Inc.**  
200 Bradford St. Brooklyn—New York

**T**here's always  
something new just  
at hand for the  
regular reader of

**MOTOR AGE**

# Cold Drawn Steel Stem

A cast head valve, made as Toledo Valves are made, is infinitely superior to any one-piece valve made of the ordinary steels.



The stems of Toledo Valves are made of a ductile grade of steel, one that is high in elasticity and that does not crystalize or become brittle by repeated heating and cooling. These stems are rolled oversize and cold drawn to improve the quality of the grain. A soft steel was selected to insure the minimum of wear to the guides. It will not gall or stick in the guides, but moves freely with a small amount of lubrication. The tappet end is made file hard by immersing in a cyanide bath. Leading jobbers everywhere have Toledo Valves for all cars and motors.

**THE TOLEDO STEEL  
PRODUCTS COMPANY**

Toledo, Ohio

*Valves Exclusively for Over Thirteen Years*

*Ask Any Engineer*

**Use  
TOLEDO VALVES**

## HUDSON-ESSEX DEALERS

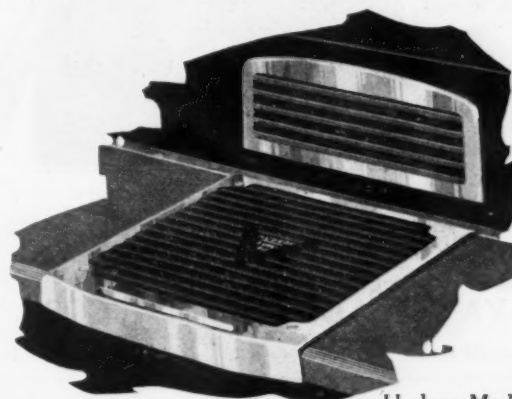
*There Is a Big Demand  
for These*

**KREGER**

**Step and Kick Plates**

**Custom Built for 1927**

**HUDSON and ESSEX Cars**



Hudson Model

Dress up one of your floor or demonstrator cars—you'll be convinced of the big demand for these plates.

**LONG PROFITS  
QUICK TURN-OVER**

Made of heavy cast aluminum polished to a mirror-like finish, with a special black moulded rubber insert. They add that touch of beauty, snap and distinction so much wanted.

**More Than Liberal Discounts**

Other Hudson-Essex dealers are cashing-in on this business—get started now. Use the coupon.

**LAWRENCE F. KREGER**

752 First National Bank Bldg.

Chicago

Illinois

Lawrence F. Kreger,  
752 First National Bank Bldg.,  
Chicago, Illinois.

Send me full details concerning the prices and the more than liberal discounts on your Step and Kick Plates for Hudson and Essex Cars.

Name.....

Address.....

City.....

State.....



## Look Into YAVAPAI

*Genuine Onyx Gear Shift Balls*

That is the first test of a **genuine** Yavapai Onyx Ball. You can see into it, below the surface. Its native beauty is its surest-fire selling point.



Car owners prefer the **genuine** Yavapai Onyx. They are willing to pay the slightly higher price to get it. Which, of course, reacts in favor of the dealer, who makes a bigger profit on the transaction.

Ask your jobber, or get in touch with us, giving his name.

**YAVAPAI ONYX MINING CORP.**

Automotive Division

Dyersville,

Iowa

# Rubyfluid

TRADE MARK REG.

*The most efficient  
flux on the  
market!*



Rubyfluid is a flux for soldering and tinning on all metals, without destroying, damaging or tarnishing.

Quick acting, non-corrosive, non-explosive, non-injurious.

Preferred by mechanics. Try it, and see.

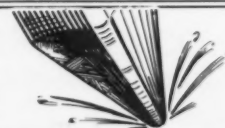
## The Ruby Chemical Co.

Columbus

68-70 McDowell St.

Ohio

FOR  
ALL  
METALS



## Order It Now Crane Packing Co. or Your Jobber

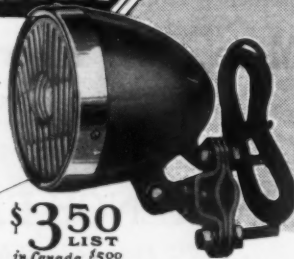
1805 Cuyler Ave., Chicago  
109 Broad St., New York

Send.....spools "John Crane"  
Garage Size 40 ft. length, \$2.50  
net, each .....  
Junior Size 15 ft. length, 1.50  
net, each .....  
Owner's Size 5 ft. length, .50  
net, each .....  
f. o. b. Chicago.

# New

**BULLET TYPE  
ROAD  
LIGHT**

**CUTS off the  
GLARE  
waist high**



**\$3.50**  
LIST  
in Canada \$5.00

PARAFLEX Reflector and PARABEAM Lens—adopted for headlights by Packard, Nash, Kissel, Lincoln and the other big leaders—are used in the new Delta PARALITE road lights. Delta's adaptation of them for road lights marks the greatest advance in such lighting.

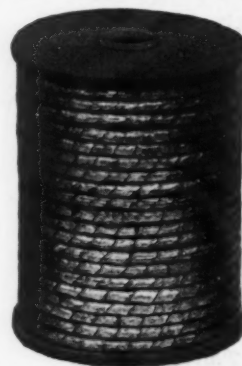
The Delta Paralite shoots a strong distance light down the road and gives plenty of soft, diffused light at either side of main beam—with the glare cut off waist high. Bright. Safe.

The Paralite is now available in the smart bullet type (No. 90, shown above) and the standard drum type (No. 70). Both are equipped with universal brackets permitting you to mount either one on any car.

Beautiful, sturdy, compact! Stock the two Paralites and share in the profits. See your jobber or write us.

DELTA ELECTRIC COMPANY  
503 Delta Block Marion, Indiana

# Delta



Leading automotive engineers are specifying "John Crane." It is fast replacing asbestos. Frictional load on the motor is reduced. No more pump leakage or scored troublesome pump shafts.

## The Pump Packing The Motor Builders Use.

Buick, Nash, Studebaker, Knights, Dodge, in fact all automobile water pumps can be packed with this one size. No more obsolete stocks. Makes a packing job worth more money.

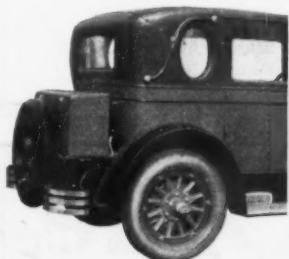
# "John Crane"

**Metallic  
Pump Packing**



## You can get STEELWOOD AUTO TRUNKS NOW

Our new 1927 Models proved so popular we were swamped with business beyond our capacity early in the year, but we have just moved into a new addition to our factory and have doubled our production. We are now ready to take care of all orders promptly.



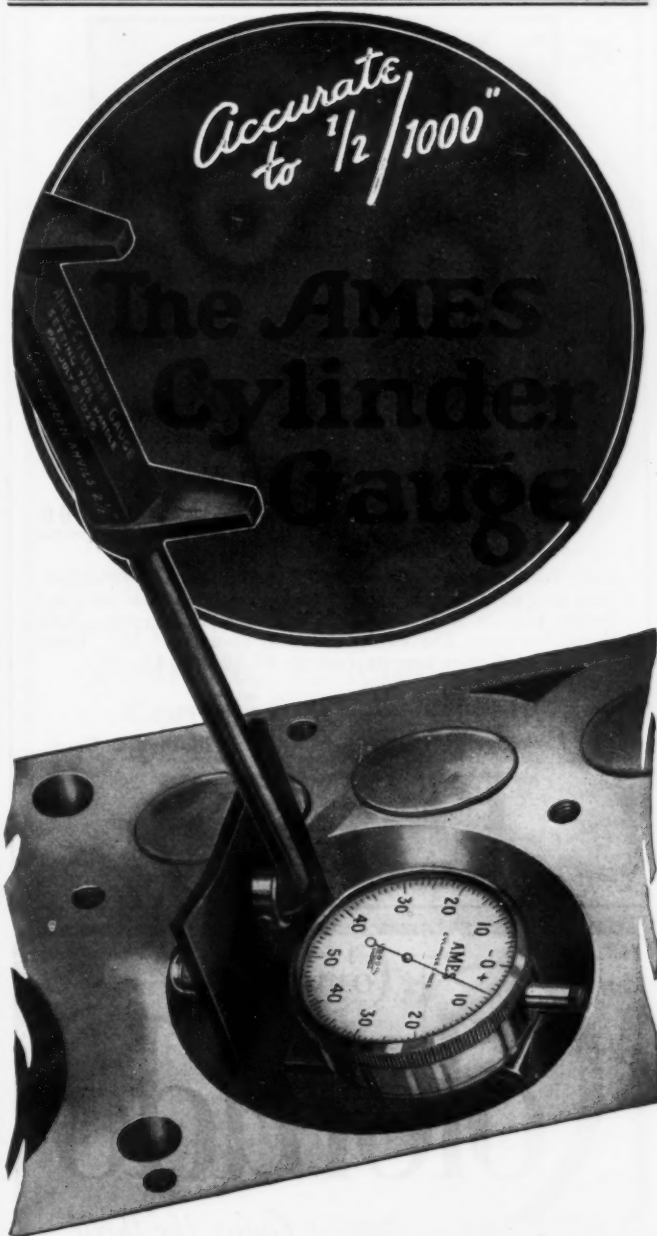
### TRUNK RACKS For Leading Makes of Cars

An Auto Trunk will  
make your car  
More Useful  
Comfortable  
Convenient  
Beautiful  
Complete

The new Improved Steelwood construction consists of an outside covering of steel, an inner lining of fibre board with special grain finish, and a solid wood bottom. An improved design of rubber weatherstrip goes around the entire four sides of the trunk. A new hinge construction permits the cover to hinge at the top edge, so the trunk can be placed close to the body of the car.

*A sample order will show you why the new Steelwood trunks have proven so popular.*

Department T  
**WATTS-MOREHOUSE CO.**  
JACKSON, MICH.



Shows up the wear—Follows the job of honing—grinding—remachining—Checks the accuracy of the finished work—Finds the profitable job and insures it—Helps beat the flat rate—A profit maker — Speedy — Price \$17.50.

### Ask Your Jobber

Send for your copy of the interesting new Instruction Book on Measuring and Testing Cylinders—FREE.

**B. C. AMES CO.**  
Waltham, Mass.

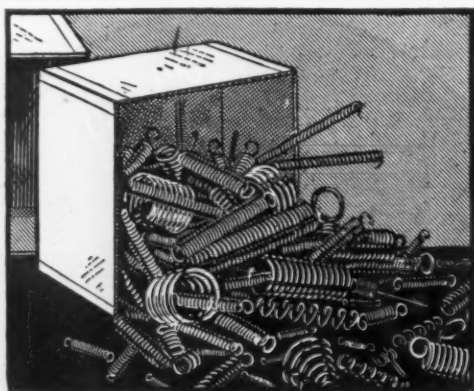
B. C. Ames Co.,  
Waltham, Mass.

Send me a FREE Copy of the Ames Cylinder Gauge INSTRUCTION BOOK—about measuring and testing cylinders.

Name.....

Address.....

MA 3.....



Buy this for \$1<sup>50</sup>  
Sell it for \$25<sup>00</sup>

Peck's Spring Assortment No. 1—more than 100 extension and compression springs in brass and steel at your finger tips in a wide range of sizes and types. Sell these for only 25c each and you clear \$23.50. Lists at \$1.50. Other assortments at \$3.50 and \$5.

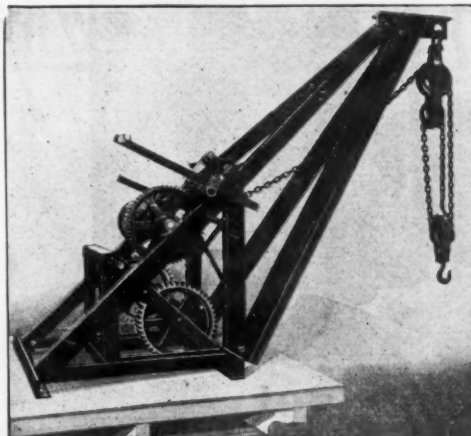
Write for descriptive matter  
and name of nearest jobber

The Peck Spring Co.

Plainville, Conn.

**PECK'S**  
Spring Assortments

**Better Cranes—Lower Prices!**



\$63  
to  
\$93

### "A. C. E." CRANES

are designed and built to provide greatest POWER—STRENGTH and DURABILITY. They OUTLIFT and OUTLAST all others. Best Values ever offered—SAVE YOU 20% or more. Get YOURS NOW—money refunded if not fully satisfied. Send for catalog of Cranes, Grease-Racks, Portable Inclines, Steel Horses, Tire Racks, etc. JOBBERS; Write for the "A. C. E." Proposition—it's the BEST.

AIR COMPRESSOR & EQUIPMENT CO.  
288 E. Genesee St., Buffalo, N. Y.

Come up to  
Cool  
**Colorado**



*Enjoy the Thrill  
of Mountain Motoring*

**The World's  
Highest  
Auto Road**

on MOUNT EVANS, is 65  
Miles from Denver and 14,  
259 ft. above sea-level. Tour  
to the top!

There are hundreds of  
other wonderful trips in  
Colorado.

**Low Summer Rates  
on All Railroads**

Write us for complete infor-  
mation and illustrated  
booklet.

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BUREAU**

of the  
Chamber of Commerce

534 17th St., Denver, Colo.

Denver, the Gateway to 12  
National Parks and 32  
National Monuments

Fall River Road  
Rocky Mountain Nat'l. Park

*In the next issue of*  
**MOTOR AGE**

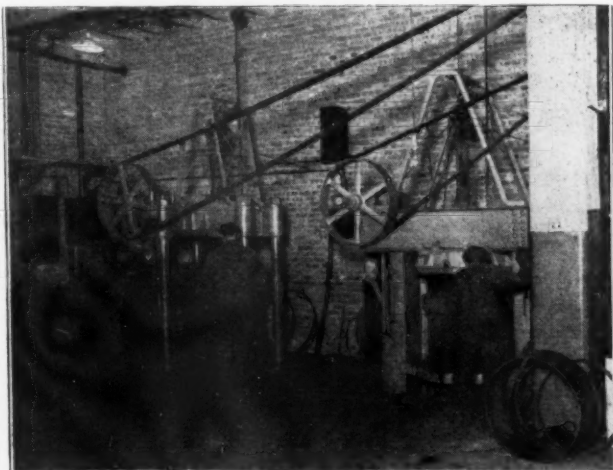
there may be a new  
idea that will mean  
many dollars of  
profit to you . .

**Don't miss it!**



## YOU WILL MAKE NO MISTAKE

IF YOUR FIRST AND ONLY BUY  
is a Tire Applying Press of sufficient capacity to Mount  
and Demount the Largest Truck Tires



*This Shop First Bought a 200 Ton Press*

Write for Bulletin No. 533 describing our 325 Ton Model No. 2727

A user of 9 presses says,  
"No other Press at Any Price"

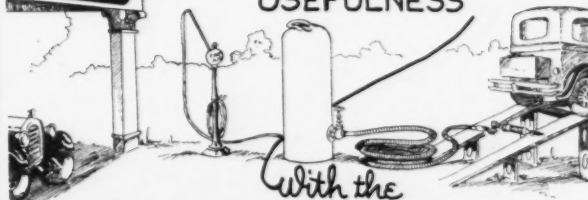
**CHARLES F. ELMES ENGINEERING WORKS**

233 N. Morgan St., Chicago, U. S. A.

New York, Room 310, 30 Church St. Phone Cortland 4435

**E-HYDRAULIC-S**  
PRESSES  
ELMES  
SINCE 1851

Add CHASSIS LUBRICATION  
to AIR COMPRESSOR  
USEFULNESS



## TEAPOT DOME OILER

Make more money, attract new trade, establish a  
reputation for up-to-date service. Charge the Teapot  
Dome Oiler from your present air equipment.

### Turn Free Air Into Money

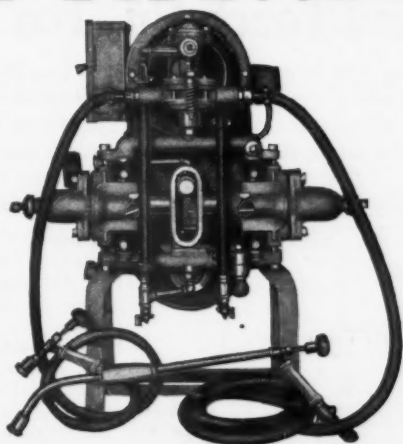
Pressure of 20,000 pounds eliminates bolt removal  
and insures thorough work. Service a car in 10 min-  
utes. Charge your customer less, and still make a  
bigger margin than ever before.

### Positive, Efficient, Clean Conveniently Portable

*If you want to make some real money this season, ask us  
for complete information and name of nearest distributor.*

**Teapot Dome Oiler Co., Inc.**  
Drawer 78, Watsontown, Pa.

## SPRAWAY



### COMPLETE SINGLE UNIT HIGH PRESSURE CAR WASHING OUTFITS

Thirty years of high pressure pump building and engineering  
stand behind these beautiful, simple, durable hydro-electric car  
washers.

Made in one and two-gun sizes.

Completely equipped—set on floor and connect electric wires  
all that is necessary to install.

Light weight—can be moved about with ease.

Descriptive literature and prices on application.

Mention this paper.

**"FRIEND" MANUFACTURING CO.**

Gasport, N. Y.

"WHERE FRIENDS ARE MADE"

## Reach For Conneaut Plastic Metallic Packing for Spring Overhauling Jobs



It's convenient  
and easy to use.  
Makes a depend-  
able job and in-  
sures a perfect fit.  
Comes in putty  
form. Mold with  
the fingers.

Conneaut Plastic Metallic Packing has all the sizes in  
one can.

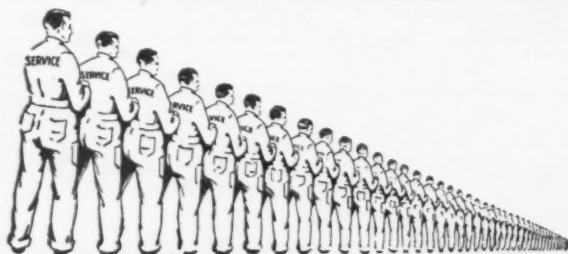
1 lb. can.....\$1.75  
5 lb. can.....\$1.60 per pound

Ask your jobber or write us direct.

Manufactured by

**THE CONNEAUT PACKING COMPANY**  
CONNEAUT OHIO

# UNIFORM!



## —With Spic and Span Protexalls

Your human trade marks! Neat, and all wearing the same uniform with your trade mark lettered across the back. That's good advertising every day in the year and the cost is very small.

Protexalls are very inexpensive, yet they're made to wear like iron. Protexalls are stocked in Khaki, Stripes and other fabrics particularly suitable for service station work.

### Your Name on Each Suit

Whether you order one suit or a thousand you can have your firm name or trade mark lettered across the back. Protexalls are also furnished plain.



PROTEXALL COMPANY  
100 N. Main St., Abingdon, Ill.  
Southern Branch  
33 E. Mitchell St., Atlanta, Ga.

## ONE PIECE SUITS

# LORENZ

## AUTOMOBILE TRUNKS

### IMITATED BUT NEVER DUPLICATED



LORENZ  
TUKAWAY  
(Patented)

LORENZ originated the famous round corner idea for auto trunks. Now we announce the addition of the NEW PORTABLE TOOL COMPARTMENT in all LORENZ TRUNKS without extra charge.

LORENZ TUKAWAY AND BIG CHIEF

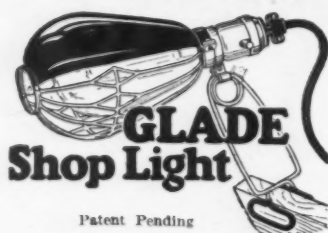
AMERICA'S FINEST AUTOMOBILE TRUNKS

Now Equipped With The  
PORTABLE TOOL COMPARTMENT  
NEED NO INTRODUCTION TO THE TRADE

LORENZ TRUNK WORKS, INC.

Main Office and Factory, Automotive Division  
211-213 FIRST AVE. NORTH, MINNEAPOLIS, MINNESOTA  
We Sell Through Jobbers Only—New Jobber Sheets Ready

## See What You're Doing



Patent Pending

## The Best Light—By Far For Your Work

When you see your work you can do it faster, better and at a greater profit. That's why the Glade Shop Light is worth so much to you. Unlimited adjustment, light can be thrown just

where you want it. Your eyes deserve the best light.

Holds itself anywhere and has other special features.

Sold with or without cord. Write for complete details.

**Glade Mfg. Company**  
209 S. State St. Chicago, Ill.

## For Production Painting And Touch-Up, Too

Because of the instant response of Handigrip to varying pulls on the trigger, and perfect atomization regardless of volume, a Handigrip spray gun can be used for either production painting, touch-up work or patching.



Because of its easy cleaning features, the Handigrip is conveniently used for body lacquers, chassis paints and for different colors, with the same paint cup; or, being easily detachable, extra cups can be furnished for different colors.

The Handigrip is an all-round general utility spray gun.

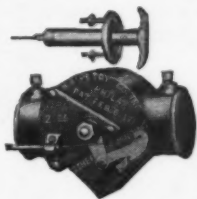
Furnished with air compressor or for use in connection with your own supply of compressed air.

Our selling policy affords you, without risk, a demonstration of Handigrip efficiency in your own work. Write for information today.

**Plummer-Huff Company**  
NAPOLEON, OHIO



# Our SAMPLE CASE



## Easier to Sell Because EVERYBODY KNOWS PETRY'S!

Petry Tuning-Up Valves have been on the market for 10 years . . . known everywhere with thousands in use. Best method for diagnosing engine troubles. Liberal discounts and an active market. Write for particulars. N. A. Petry Co., Inc., 320 N. Randolph St., Phila., Pa., Pacific Coast Rep., Norman Cowan Co., Rialto Bldg., San Francisco, Cal.

**PETRY Tuning-Up VALVES**



## The THORDOX Clamp on Ash Receiver

One of the biggest sellers in a fast-selling class. In addition to ash receptacle, it includes holders for a box of matches and pack of cigarettes. Made of Non-rust THOROLIUM, highly nickel plated. Will not rust or rattle. And the list is only 75c. Write.

**THE THORDOX MANUFACTURING CO.**

410-412 N. Hermitage Ave.

Chicago, Ill.

## Mr. Manufacturer

**Y**OU are invited to have this Sample Case Salesman present your proposition to the leading Automotive Merchants. This Salesman has effective contact with nearly 25,000 prospects.

Drop us a line and we will tell you all about this economical plan.

**SAMPLE CASE SALESMAN**

**MOTOR AGE**

5 S. Wabash Ave., Chicago, Ill.

## THIS TOOL KIT HELPS TO MOVE THOSE USED CARS



1 Screw Driver, 4" Blade.  
1 Ball Pein Hammer.  
1 6" Pliers.  
1 No. 25 double end wrench.  
1 Punch.  
Complete in draw-string bag.  
No. 156.

Price 75c \$8.40  
dos.

If your jobber can't supply  
you, write direct.

**CHICAGO TOOL & KIT MFG. CO.**  
156 Whiting St., Chicago

## MADE ESPECIALLY FOR GARAGE USE:

### No. 70 "ALWAYS RELIABLE" BRAZIER

a practical, durable and economical article.

The "ALWAYS RELIABLE" furnaces and torches are made in all sizes and grades. Ask for catalog.

Most jobbers stock. Others will gladly order

Stocks in Newark, N. J., New York City, Chicago and San Francisco.

Offices in Newark, N. J., New York City, Chicago, Fort Worth, Denver, Helena, Mont., San Francisco, Los Angeles, Seattle and St. Thomas, Ont.

**OTTO BERNZ CO., Inc.**  
Newark, N. J.

## FOLLETT'S NEW TIME STAMP

accounts for every labor minute



Prints the year, month, day, hour, minute, A.M. or P.M. at the exact moment the plunger is pressed—like this, for example:

NOV 19 1920 4 31 PM

Tells when a job is started—and when it is finished. There can be no dispute over the time charge.

Absolutely automatic — except for winding. Every machine guaranteed.

Follett Time Recording Co., 217 High Street, Newark, N. J.  
"Established Since 1904"

## SINKO Automatic Cigar Lighter STAYS SOLD!

Sell SINKOS and forget them. They stand up in service and don't come back with complaints.

Absolutely safe. Practical and mechanically perfect. In emergency replace heating unit with dashlight bulb and use for trouble light.

Two models. Clamp to un-

Price  
\$3.50



derneath lip of instrument board—out of sight except lighter tip—or through-the-dash. Last for life of car.

Write

**SINKO TOOL & MANUFACTURING CO.**  
357-359 N. Crawford Ave., Chicago, Illinois



## A.E.S. GENUINE TUNGSTEN COIL POINTS FOR FORD CARS



**BUY WISELY!**

The difference of a penny or two should not be an inducement to sacrifice quality and invite trouble.

Fifteen years of manufacturing experience enables us to give you the highest quality Coil Points at the lowest price.

Play safe—Our guarantee is your protection.

**C. E. NIEHOFF & COMPANY**  
141-149 W. Ohio Street, Chicago, Illinois

**MADE BY NIEHOFF**

## DEALERS—Get into Wrenches FAWSCO TOOLS PAY PROFITS

Catalog No. 121 Tells

**FAWSCO WRENCH CO.**

27 Warren St., New York City



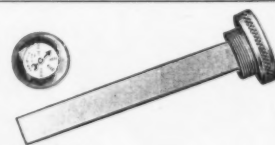
## Tasco

TRADE MARK REG.

Gas Gauge for Ford  
Chevrolet—Overland—Star  
Sells quick at \$1.25 retail. Types  
"K" and "J" for 1926 Chevrolets  
and all Stars sell at \$1.50.

**THE AKRON-SELLE CO.**

AKRON, OHIO



The most successful  
merchandisers keep  
at it every week . .

in

## MOTOR AGE

## HOT WATER HEAT FROM THE MOTOR

Warms car but leaves air clean and pure. Remains warm long after engine stops. Lasts for years. Never out of order. Only 2 models to carry. 75 minutes to install.

Write for full information.

**MOT-ACS, Inc., Dept. A**  
42 Broadway, N. Y. C.

**MOT-ACS**  
The Only  
HOT WATER HEATER  
for AUTOMOBILES

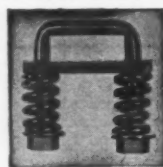


RADIATOR CAPS

ORNAMENTS

*Faith*

Confidence in a product that has been produced with scrupulous attention to detail is born only of experience. Our clients know they receive only the finest in material and artistry.

**FAITH MFG. CO., Inc.** 2533-39 N. Ashland Ave., Chicago, Ill.

Pat. Pending

## Orrville Spring Governors

Make Smooth-Running Profits

Among the foremost popular sellers for easier riding. Simple in operation and easy to install. Check the rebound and control the springs against "galloping". Ask for illustrated literature and discounts worth while.

**ORRVILLE SPRING GOVERNOR CO., INC.**

500 Brant Bldg.

Canton, Ohio



U. S.

Canada

**THOMSON MFG. CO.**  
Dept. 21 Peoria, Ill.

If jobber does not stock  
write direct

Genuine  
**APEX Innerings**

Guaranteed to stop oil pumping  
and piston slap and renew motors,  
without re-boring.

The Jordan is different  
—and always will be.



**Jordan Motor Car Company, Inc.**  
Cleveland, Ohio

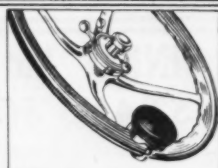


A necessity for modern  
easy steering cars

## Whipple STEER-O-NOB

A handle for  
Steering Wheels  
Spin the steering  
wheel around with  
ONE HAND—Have  
the other free for  
changing gears.

Whipple Mfg. Co.  
33 W. 60 St.  
New York



Highest quality hand polished  
solid walnut. Price \$5.00

## CONSOL RADIOS - BATTERIES - ELIMINATORS

CONSOLIDATED BATTERY CO., INC.

New York

PHILADELPHIA

Buffalo

## NEXT WEEK

—is the time to read next week's issue of MOTOR AGE,  
as you are reading this week's issue this week

## MOTOR AGE

5 So. Wabash Ave.

Chicago, Ill.

## Lessens Ford Vibration



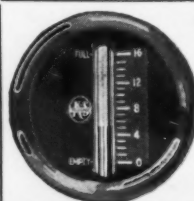
Holds Ford engine in a tight grip that steadies chassis; lessens danger of broken crankcase arms, sets permanently those already broken.

Write today for dealer proposition

The Brewer-Titchener Corporation  
108 Port Watson St. Cortland, N. Y.

Pioneer Engine Support

Only  
\$3.00



The **K-S** GASOLINE  
TeleGage

A gasoline gauge on the dash. Note our half-page advertisement in the Saturday Evening Post, May 28. Write for description and proposition to the trade.

**KING-SEELEY CORPORATION**  
298 Second Street, Ann Arbor, Michigan  
Chicago Branch, 2450 Michigan Blvd.



## Quick Reliable Complete

gasket service  
when you always  
keep on hand a  
few yards of

# VELLUMOID

THE VELLUMOID REAL  
REPLACEMENT GASKET MATERIAL

—and for the makes of cars most  
often serviced keep on hand a  
supply of ready-cut Vellumoid Oil  
Pan and Gear Cover Gaskets.  
Accurately cut; do not shrink,  
stretch, crack nor break; always  
ready for use. Applied without  
shellac—easy on and easy off.

M'd by the Vellumoid Co., Boston, Mass.



You're  
excused

for not believing it and it's up to  
us to prove it. After we prove it  
you'll make ten times as much profit  
by the easier, surer, quicker Sim-  
plex Method. One of our 3,000  
demonstrators is near you, waiting  
for your inquiry. Shoot it in now.

The Simplex Piston Ring Co.  
of America, Inc.

1971 East 66th St., Cleveland

oil pumping  
piston slap  
and  
compression  
loss

without resizing cylinders  
and installing new pistons

# Grey-lock

BRAKE LINING

## The Only Lining With The Braking Surface Ground Smooth

"Its Life Is Double—With Half the Trouble"

UNITED STATES ASBESTOS COMPANY  
Manheim, Pa.

dependable tire chains

Made to stand up and make friends.  
Easy to put on!—easy to take off!

in handy cartons

Dreadnaughts are packed attractively—  
ready-to-carry-home.

—and a display cabinet that sells 'em for you!

Write for particulars now!

THE COLUMBUS McKINNON CHAIN CO.

General Sales Office: Columbus, Ohio

Factories: Columbus, Ohio

Tonawanda, N. Y.

In Canada:

McKinnon Columbus Chain, Ltd., St. Catharines, Ont.

## DREADNAUGHT TIRE CHAINS

For Balloon, Cord and Truck Tires



# TIMKEN

*Tapered*  
**ROLLER BEARINGS**



## NO RAD RUST

In WINTER—Reduces anti-freeze evaporation  
75%.

In SUMMER—Prevents all trouble resulting  
from overheated engine by keeping cooling sys-  
tem CLEAN. Get details and discounts.

No Rad Rust Corp.

415 N. Water St.,

Lancaster, Pa.

### CLASSIFIED ADVERTISING

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**C. L. PARKER**

Ex-Examiner U. S. Patent Office

Attorney-at-Law and Solicitor of Patents

McGill Building, Washington, D. C.  
Patent, Trade Mark and Copyright Law

#### GARAGE WANTED

Wanted hear from owner good Garage for  
sale, cash price. Particulars, D. F. Bush, Min-  
neapolis, Minn.

To locate business opportunities  
To sell, rent, exchange or buy  
To find men or employment

THE CLASSIFIED DEPARTMENT  
WILL HELP YOU

#### CLASSIFIED ADVERTISING RATES

Ten cents a word is the rate for all  
undisplayed advertisements set solid,  
regular want ad style; minimum  
charge \$1 an insertion. All capitals,  
12c a word; all capitals, leaded, 15c a  
word. Payable in advance.





## Your Customers will appreciate this service

Now you can quickly give each customer's car a thorough cleaning in a few minutes. Just think what this added service will mean. It will add materially to your prestige. Your customers will appreciate it and gladly pay for such a thorough cleaning as you can give with

## Port-o-Vac

Here is the first vacuum cleaner really designed for service station work. It is not a miniature vacuum cleaner. True, it is small—purposely so. But it has a full size  $\frac{1}{4}$  H. P. General Electric motor delivering the same power as a regular household vacuum cleaner. It is ruggedly built and powerful enough to stand the strain of constant use. Yet it is so light and perfectly balanced that it is easily carried and operated with one hand.

MAIL THIS COUPON TODAY

Johnson Motor Products Co.  
308 No. Sheldon St., Chicago.  
Please send us one Port-o-Vac complete at \$31.67  
net and bill through our jobber as indicated below.

Name \_\_\_\_\_ State \_\_\_\_\_  
Street \_\_\_\_\_  
City \_\_\_\_\_  
Jobber \_\_\_\_\_

### ORDER NOW!

Port-o-Vac should be part of the regular equipment of every garage, service station, wash rack and filling station. We will gladly send you one and bill it through your jobber if you will mail the attached coupon.

Mail it Today

**Johnson**  
MOTOR PRODUCTS CO.  
308 NORTH SHELDON ST. CHICAGO

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## MR. SERVICE MAN

You have your customer's car in your shop for a few hours. Your customer has it on the road for many months, in sun, rain and snow. He expects uninterrupted use of his motor regardless of the time, place or weather.



Photo courtesy of The Stromberg Bros., Chicago.

The kind of timing chain you put into the front end of the motor **does** make a difference. When the mileage reads in multiples of ten thousand it is sometimes chain failure that leaves a driver stranded.

Do the job right. Install the Pioneer Replacement Chain which is famous for its high mileage and does not skip the sprocket teeth.

## "WHITNEY" SILENT HIGH MILEAGE CHAINS

Ask our distributor in any city, or mail coupon for specification list.

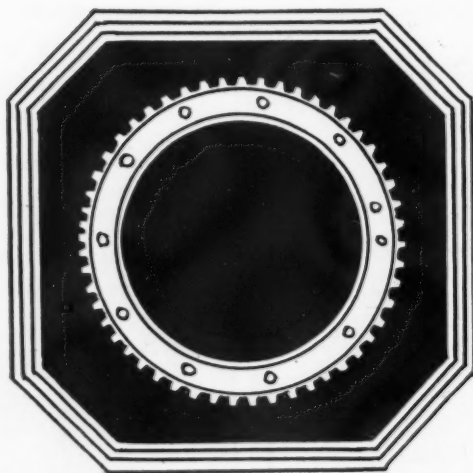
**The Whitney Mfg. Co.**  
**Hartford, Conn.**

I want that book on chain specifications

Name.....

Address.....

☐ Service Station ☐ Fleet Owner ☐ Parts Jobber



*Don't reface  
old clutch plates—*

## REPLACE THEM



### PRODUCTS

Clutch Plates  
Brake Springs  
Valve Springs  
Valve Stem Keys  
Valve Lifter  
Assemblies  
Piston Pin  
Retaining Springs  
G-H Tension  
Rings  
King Bolt Lock  
Pins  
King Bolt Thrust  
Washers  
Valves

Reports from all over the country are proving conclusively that repairmen are no longer wasting time trying to reface old clutch plates. Neither are they attempting to straighten bent, warped and scored plates.

The new 1927 way is to replace old clutch plates. For a smooth acting clutch you should replace BOTH driving and driven plates.

C-H Replacement Clutch Plates are now available from your favorite replacement parts jobber for all popular makes of cars and trucks. All your clutch plate replacements from a single source, saving you the necessity of buying here, there and everywhere.

G-H Replacement Clutch Plates are absolutely duplicates of the original equipment. Made to manufacturers' specifications.

See your replacement parts jobbers.

In case he is not yet carrying them it will help us both if you will write us, giving us your jobber's name.



**G-H MANUFACTURING COMPANY, Inc.**

6-8 E. Mt. Royal Avenue, Baltimore, Md.



*Never before —*

**So many fine car features  
at such low prices !**

The spectacular popularity of the Most Beautiful Chevrolet is based on the finest combination of quality features ever offered in a low-priced automobile.

Bodies by Fisher, for instance . . . beaded, paneled and finished in beautiful colors of genuine Duco and smartened by such marks of distinction as heavy, full-crown, one-piece fenders, bullet-type headlamps and "fish-tail" modeling on all 2-passenger models.

The famous Chevrolet valve-in-head motor has

been made smoother and more dependable by an AC air cleaner and AC oil filter. A full 17-inch steering wheel, coincidental steering and ignition lock, improved transmission, new gasoline gauge, new tire carrier—these are typical of the numerous other refinements and improvements.

It is a literal truth that Chevrolet is offering more for the money than was ever thought possible—and, consequently, Chevrolet is the most saleable automobile in the industry.

CHEVROLET MOTOR COMPANY, DETROIT, MICHIGAN  
Division of General Motors Corporation



*The Most*  
**Beautiful Chevrolet**  
*in Chevrolet History*

*The Coach*  
**\$ 595**

*The Touring or Roadster* \$ **525**

*The Coach* . . . \$ **595**

*The Coupe* . . . \$ **625**

*The 4-Door Sedan* . . . \$ **695**

*The Sport Cabriolet* . . . \$ **715**

*The Landau* . . . \$ **745**

*1/2 Ton Truck* \$ **395**

*1 Ton Truck* \$ **495**

All Prices F.o.b. Flint Michigan  
Balloon tires standard  
equipment on all models  
In addition to these low  
prices, Chevrolet's delivered  
prices include the  
lowest handling and financing  
charges available.

Q U A L I T Y   A T   L O W   C O S T



Appearance { Appearance  
Engineering  
Assembly

Wheels are the one important *mechanical* feature subject to option.

A matter decided in the salesroom largely upon the basis of appearance, concerns the factory from the standpoints of appearance *and* engineering *and* assembly.

This is one of the pressing problems which Motor Wheel has most completely and successfully solved for car manufacturers.

It is another example of the value of calling in Motor Wheel. . . . Great names are augmenting the list of cars equipped by Motor Wheel—by far the longest list in the wheel business.

MOTOR WHEEL CORPORATION, LANSING, MICHIGAN

# Motor Wheel